



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

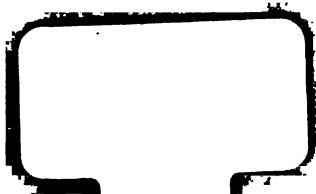
Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>



THE UNIVERSITY OF WYOMING

DEPARTMENT OF PSYCHOLOGY

BULLETIN NO. 2

The Imaginal Reaction to Poetry

The Affective and the Aesthetic Judgment

BY

JUNE E. DOWNEY,

Professor of Psychology, University of Wyoming

LARAMIE, WYOMING:
THE LARAMIE REPUBLICAN COMPANY.
PRINTERS AND BINDERS.
1911

TABLE OF CONTENTS.

INTRODUCTORY STATEMENT	5
I. IMAGINAL REACTIONS TO POETIC FRAGMENTS.....	5
1. Method	5
2. Frequency of Different Forms of Concrete Imagery.....	7
3. Characteristics of Different Forms of Imagery.....	9
a. Visual and Optical-Kinaesthetic Imagery.....	9
b. Auditory Imagery	11
c. Olfactory and Gustatory Imagery.....	13
d. Cutaneous Imagery	14
e. Organic and Pain Reactions.....	14
f. Kinaesthetic Reactions	15
4: General Characteristics of the Imaginal Reaction.....	16
a. Use of Memory Material.....	16
b. The Background	17
c. Imagination Types	18
d. Spontaneous and Voluntary Images.....	19
e. Self-Projection	19
5. The Inner Speech.....	20
II. DEPENDENCE OF REACTION UPON MATERIAL.....	25
1. Literary Suggestion	25
2. The Method of Style.....	27
III. THE AFFECTIVE REACTION TO POETIC FRAGMENTS.....	30
1. Imagery and the Affective Judgment.....	30
2. The Variability of the Affective Judgment.....	36
3. The Aesthetic and the Affective Judgment.....	41
IV. SUMMARY AND CONCLUSIONS.....	46
APPENDIX. POETIC FRAGMENTS.....	49

The Imaginal Reaction to Poetry.

INTRODUCTION.

The present report cites, at some length, the imaginal and affective reactions of a number of subjects to many poetic fragments. The experimental studies of imagery that have previously been made would seem to render such a study as this of slight importance unless enforced by presentation of some new method of control,—the great need in imagery-investigation. No such control was utilized except that in such extensive reports as the following there is a continual checking of an earlier by a later report. The intensive nature of the test and the aesthetic material which was utilized in arousing the imaginal reactions must be pleaded as an excuse for the study.

The reports to be presented in the following pages were gathered with the following purposes in mind:

(1) It was desired to test the images aroused by poetry as an aesthetic material in order to compare such results with those obtained by Professor Martin in the first series of her experiments "Ueber aesthetische Synaesthesie" (10), in which pictures were used as the imagery-arousing situation.

The test resulted in the gathering of an immense amount of material relative to the arousal of images by means of words. In this respect the study simply adds to the literature already current upon individual differences in such arousal. Especial attention was, however, directed (a) to optical-kinaesthetic images in distinction to kinaesthetic reactions felt in the person, a distinction Miss Martin has urged; (b) to the projection of self into the imaginal situation; and (c) to the inner speech as aesthetic material.

(2) It was desired to determine the value of the Method of Style, and the criticism that there is little hope of getting insight into the imaginal predispositions of a given author by means of the images aroused by his productions in the mind of a particular reader because of the extreme divergence among individuals in the kind of images aroused by given phrases.

(3) By the method of group-arrangement, an estimate was sought of the affective and aesthetic value of the different fragments and of the relation of such value to the number and kinds of images. In brief, Miss Martin found that aesthetic pleasantness (or unpleasantness) was heightened by rich imagery and that, in particular, images, or pseudo-sensations, from the so-called lower senses (touch, taste, and smell) played a by no means unimportant part in the aesthetic appreciation of pictures. Would the same statement hold true in the appreciation of poetic material?

I. IMAGINAL REACTIONS TO POETIC FRAGMENTS

I. METHOD.

In the experiments on the imaginal reactions to poetry, two groups of subjects were used; seven in the first, or Wyoming, group; five in the second, or Chicago, group. Every reagent in the first group had had some training in introspective observation, particularly in the observation of imagery, but only one, D (the writer) had had extensive training. The

members of the Chicago group, graduate students of psychology, had had more extensive training than those of the first group.

The subjects of the first group read one hundred and ten fragments of poetry and wrote out detailed reports on the imagery aroused by such reading. These fragments were taken from the poetical works of the following poets: Blake, Poe, Keats, Shelley, and Swinburne, and were selected so as to give variety in the kind of suggestion. The fragments were typewritten upon blank cards of the same quality and size and the following typed directions were placed before the subject while at work:

"Do you experience a posture or movement of an object in the description as if it were your own posture or movement? If so, in what part or parts of the body is the posture or movement felt? And with what strength?

"Do you see an object described in the fragment in movement? Do you experience sensations or images of sound, color, light, smell, taste, pressure, temperature, pain, organic quality, while reading the fragment?

"Do you hear the fragment repeated in inner speech while reading it? If so, does the reading have auditory quality? Is it that of your own voice?

"Pass a judgment upon the aesthetic value of the fragment as follows: +3, very pleasant; +2, moderately pleasant; +1, somewhat pleasant; 0, indifferent; -, partly pleasant, partly unpleasant; -1, somewhat unpleasant; -2, moderately unpleasant; -3, very unpleasant."

These directions followed those of Miss Martin's (10:6, 7), with the modifications necessitated by change of material.

No time-limit was placed upon the work which required for completion several hours at different sessions. The advantage in such procedure was that the time necessary for aesthetic absorption in the material was given; the disadvantage in the method was the shift in the attitude of the reagent from one day to another.

Some weeks after the completion of this work, the subjects were asked to classify again these fragments according to their pleasantness-unpleasantness as outlined above, and then to redistribute them into four groups according to the imagery, under the following rubrics: very vivid; moderately vivid; faint; no imagery. These second records were used (Part III) in determining the relation between the vividness of the imaginal reaction and the affective judgment. (10:18f.)

The Chicago group of subjects read over silently one hundred of the fragments, (see appendix) typed as before, and gave their report to the experimenter orally. The method was somewhat different from that used with the Wyoming subjects. Fifty fragments were read at a sitting and the reports on visual, auditory, and other imagery were obtained at different sessions. The order of procedure was as follows: The reagent would first classify the fifty fragments into eight groups, according to their affective value, under the categories given above, very pleasant, moderately pleasant, somewhat pleasant and so on. After the experimenter had made record of the fragments in each group, a redistribution would be made relative to the vividness of a particular kind of imagery, such as the visual or the auditory, into the four groups, very vivid, moderately vivid, faint, or no imagery of the given kind. The experimenter in recording the fragments placed in each of these groups would get from the subject a detailed introspective report on the given imagery that had been noted on reading the fragment. In this case, it should be noted, the imagery is called back and reported from memory in contrast to the direct reports of the first group.

In order to complete the reports on the one hundred fragments it required two experimental sessions each for the reports on (1) visual

imagery, (2) auditory imagery, (3) olfactory, gustatory, kinaesthetic and organic imagery. Each fragment was thus read three times, once each for the three different imagery reports. An interval of a week was allowed in every case to elapse before a fragment was reread. In spite of this lapse of time, one or two subjects reported that the imagery on rereading the fragment was less rich than on the first reading. So far as this is true, the reports on visual imagery have the advantage while those on olfactory, gustatory, organic and kinaesthetic images suffer to the greatest degree.

It was sought to get very definite reports on the visual imagery called up by each fragment. To aid the report the following points were typewritten and placed before the subject:

Report on Visual Imagery.

Character of the visual images?

Color? Form? Background?

Movement seen?

Size of Image? Location relative to observer?

Fancy Image?

Memory Image? If memory image, give date of original impression.

2. FREQUENCY OF DIFFERENT FORMS OF CONCRETE IMAGERY.

The frequency with which the different forms of imagery occurred with visual reading for each reagent of both the first and the second group is shown in Tables I and III. It is interesting to compare these tables in an attempt to determine how far the difference in method influenced the reports.

A comparison of the figures for each sort of imagery is instructive. Since there were seven reagents in the first group and five in the second, and the latter reported on one hundred fragments and the former on one hundred and ten, the frequency of each form of imagery in Table III should approximate 50/77 of its frequency in Table I, unless the individual differences or the difference in method have caused variation. If we compare the tables with this proportion in mind, we find that the number of auditory, olfactory, and gustatory images in Table III is proportionally much higher than that in Table I. To a certain extent the excess of such auditory images in the second table is due to individual differences, since all the subjects of the Chicago group reported auditory images with considerable frequency while at least one subject of the Wyoming group found auditory imagery a negligible quantity. Partly, however, the method is a determining factor, since, no doubt, the separate reports on visual and auditory imagery served to throw the latter into clear relief.

L's excessive number of olfactory images explains the discrepancy relative to olfactory imagery and individual differences that relative to gustatory imagery. The number of visual, optical-kinaesthetic, tactual, temperature, and pain images is, proportionally, very similar for the two tables. The excess of organic and posture images for the first group and of movement images for the second group is probably to be explained on the ground of individual differences. On the whole, considering the possible divergency arising from individual differences, the agreement between the two tables is rather striking.

A comparison of the number of images aroused in the same subjects by hearing forty fragments read aloud with the number aroused by visual reading (Tables I and II) shows that there is a slightly higher percentage of certain kinds of images with visual presentation than there is with auditory presentation, a result to be explained by the fact that the greater

time given to the visual reading favored the development of latent imagery. On the other hand, the auditory series showed the effect of practice, a fact which probably accounts for the relatively greater proportion of kinaesthetic and optical-kinaesthetic images reported in the auditory series.

Relative to auditory images, it is to be noted that they are proportionately much fewer in number in the auditory than in the visual series, a result that might have been anticipated since auditory sensation constitutes, no doubt, a greater obstacle to the arousal of auditory imagery than does the auditory verbal imagery of inner speech. In one case only (B) is there evidence of a reversal of this relation, an observation of particular interest, since B, to a higher degree than any other subject, reported preoccupation with the auditory aspect of inner speech. (See I, 5.)

A detailed comparison of these tables with that of Miss Martin's (10:7), which gives the frequency of the various forms of pseudo-sensations aroused by the contemplation of pictures would scarcely be of value, so different is the situation utilized. Two interesting observations are, however, evident. The first is the greater frequency of posture and kinaesthetic material when pictures are used as the aesthetic material; the second is the greater frequency with which auditory images are reported when poetry is the art in question. Again, such a result might have been anticipated. In general, the investigation suggests a method by which we may determine the value of poetic suggestion in comparison with that of other art-forms.

Apparently, more vivid pseudo-sensations were aroused by contemplation of pictures than by reading poetry. As Miss Martin urges (10:59), a number of transitional forms between sensations and images must be recognized, and many of the reactions reported by her subjects were more definitely sensational than imaginal. The reagents of the present test reported many organic and kinaesthetic sensations and an occasional auditory or olfactory hallucination. On the whole, however, their reactions were definitely imaginal in the accepted sense of the term.

TABLE I.—(Wyoming Subjects.)
NUMBER OF IMAGES. 110 FRAGMENTS, READ SILENTLY, (VISUAL PRESENTATION).

Reagent	Auditory	Olfactory	Gustatory	Tactual	Temperature	Pain	Organic	Kinaesthetic		Optical-Kinaesthetic	Visual	Total*
								Posture	Movement			
A	57	28	6	40	21	3	35	13	14	19	100	312
B	21	6	1	4	5	2	20	13	16	30	101	189
C	27	0	0	1	1	1	8	3	1	8	106	148
D	20	8	3	17	8	7	28	35	47	50	88	259
E	78	15	1	10	12	2	12	17	8	36	100	255
F	5	4	0	6	3	0	16	22	10	11	61	127
G	53	5	1	16	10	6	22	13	14	41	100	240
Total..	261	61	12	94	60	21	141	116	110	195	654	1580

*Note 1:—Optical-kinaesthetic images are not included in the total number.

TABLE II.—(Wyoming Subjects.)
NUMBER OF IMAGES. 40 FRAGMENTS, HEARD READ (AUDITORY PRESENTATION).

Reagent	Auditory	Olfactory	Gustatory	Tactual	Temperature	Pain	Organic	Kinaesthetic		Optical-Kinaesthetic	Visual	Total*
								Posture	Movement			
A	14	9	0	10	5	1	7	15	13	17	52	126
B	14	3	0	5	3	2	8	5	6	17	43	91
C	7	1	0	3	2	0	4	0	2	17	48	67
D	4	1	0	1	4	0	7	11	23	10	30	81
E	20	3	0	4	3	0	4	7	1	28	40	82
F	2	1	0	0	1	0	1	9	6	6	32	52
G	17	5	0	6	6	0	5	4	5	23	41	89
Total..	78	23	0	29	24	3	36	51	58	121	296	598

*Note 2:—Optical-kinaesthetic images are not included in the total number.

TABLE III.—(Chicago Subjects.)
NUMBER OF IMAGES. 100 FRAGMENTS, READ SILENTLY, (VISUAL PRESENTATION).

Reagent	Auditory	Olfactory	Gustatory	Tactual	Temperature	Pain	Organic	Kinaesthetic		Optical-Kinaesthetic	Visual	Total*
								Posture	Movement			
I	33	6	3	10	10	2	3	1	32	43	104	204
J	57	7	3	8	9	2	2	8	25	47	108	260
K	26	8	1	3	0	0	3	0	8	19	62	111
L	78	41	2	47	21	4	20	10	17	19	84	224
M	31	7	1	7	0	2	11	9	23	7	42	133
Total..	225	69	10	75	40	10	74	28	111	135	395	997

*Note 3:—Optical-kinaesthetic images are not included in the total number.

3. CHARACTERISTICS OF THE DIFFERENT FORMS OF CONCRETE IMAGERY.

a. Visual and Optical-Kinaesthetic Imagery.

Although for every reagent visual images were more frequent than any other kind of image, the excess of such images varied greatly from subject to subject. Thus the proportion of visual images to the whole number of images ranges from 30.4 per cent. for M to 71 per cent. for C.

Even more noticeable than individual differences in the frequency of the visual image were the individual differences with respect to its vividness, determination, detail, concreteness, particularity, and localization. The vivid visualizations of A, E, K, and J were in striking contrast to the vague fleeting visual images of D, F, L, and M.

A's visual imagery was vivid and concrete, but neither particularized nor detailed. Very often she reported a rapid shift from one picture to another. A fragment that she was unable to visualize was apt to remain unmeaning. Repeated suggestion of imagery was fatiguing and unpleasant. Her images appeared with a rich background, of which more will be said later.

B's visual imagery on occasion became exceedingly vivid. Its striking characteristic was its unexpectedness, very often its grotesqueness.

For example, "The visual imagery in this fragment consisted in seeing a blade of grass with many other blades about it and a large bee who had a tiny skirt which hung from his waist." (Fragment 19.)

Color and light were prominent features of B's visualization. Such adjectives as sparkling, starry, glimmering, gleaming, shimmering, gloomy, dark occurred with great frequency in his reports.

C's visual images were highly particularized. He would image, for example, not a river in general, but the Mississippi or Laramie river in particular, although nothing in the context would suggest such specialization. A definite localization occurred with great frequency. Often C utilized features of his present environment in particularizing such localization. An imaged person was, for example, placed in given room in the building where the tests were carried on. For landscapes, C utilized as setting two favorite canyons near his home. A fixation of visual images which then become material to be used in many connections is characteristic of C's mental processes. The images constructed, for instance, on a first reading of "Ben Hur" or "The Lady of the Lake" have become a permanent possession used for mental illustration of many situations.

D's visual images were not only proportionately less frequent, but also much less vivid and detailed than those of the majority of reagents. The type, not the individual, characteristics were pronounced in the image. Landscapes were, however, visualized in greater detail than were persons and colors were vividly seen. Localized and particularized images were rare. Often a visual image was reduced to a mere flash or glimmer.

For example: "With 'sigh' there was a suppressed tendency to sigh. Then I saw the 'moans' flying above me. They are round like O's and grey. They 'sort of' fall and vanish at the last. Very fleeting optical-kinaesthetic imagery." (Fragment 4.)

Probably the most characteristic feature of D's visualizations was the amount of movement seen. Visual imagery almost always involved the seeing of movement. Very often the visual imagery appeared to be merely an objectification of a movement, so attenuated was the visual content, and yet the movement was distinctly felt to be visual as distinguished from felt movement. Thus the wind was visualized as an undulatory movement flashing past at the level of the eyes. Consciousness of the eyes and of eye-movement was very pronounced and, apparently, the latter was often objectified and gave optical-kinaesthetic imagery.

This visual objectification of movement by D distinguishes her optical-kinaesthetic imagery from that of other subjects. A's optical-kinaesthetic imagery is most pronounced where there is distinct shift from one scene to another. For C, movement enters the visualized scene slowly and with deliberation and may be confined to small portion of the imagery. Thus, he may see a man slowly drawing on a glove or the fall of a leaf. The same observation holds true for E and G.

Both E and G reported visual imagery of considerable vividness. G's images were remarkable for the amount of detail reported.

F's visual images were frequently mere visual schema which she described as abstract and general rather than specific. Usually, when they were of moderate vividness and precision, they were identified as memory images.

With I, visual imagery was both frequent and vivid. A noticeable feature of his imagery was the fact that it appeared in a series of fragments. A situation was usually visualized bit by bit rather than as a whole. These images were frequently seen in black and white.

K's visual images were very vivid. She reported that she was able to project visual images so clearly as to be able to draw them and that she has a remarkable visual memory. K frequently made use in her visualization of a memory of a picture. Sometimes the picture would be

seen in picture fashion; sometimes it would be converted into a life-sized reproduction.

J's visual images were nearly as vivid as those of K's and even more precise. The most distinctive feature of his report was, however, the definiteness with which he was able to state the localization of his images and the frequency with which he projected himself visually into the imaged scene. The distance at which J conceived his imaged objects to lie varied from a few feet to several hundred yards. Reduced figures were associated with long distances but figures exaggerated in size occurred with near localization. J's localization of his visualized self was also very definite; so, too, was his orientation as observer of this visualized self.

L's visual imagery was meagre, faint, and of much less importance than her imagery from the other senses. The latter imagery usually preceded and called out the visual image. In visualization, a whole scene rarely took form; detached visual bits appeared in flashes. In L's visualization, color was of much greater consequence than was form. A flash of isolated color may constitute the whole visual content.

For example: "Color yellow; no banner. Optical movement in air at roof-height, but no roof." (Fragment 14.)

Of all the subjects of both groups, M's visual images were most attenuated. He would, for instance, report a visual image which was identified as visual only because of a feeling of objectivity. At times a flash of color would constitute the whole visual material. Form was usually given in kinaesthetic terms.

b. Auditory Imagery.

The individual variation in frequency of auditory images was very great, ranging numerically from 5 to 78 and in proportion of number of auditory images to total number of images from about 4 per cent. (F) to 30 (E).

As was true for visual images, the characteristics of such imagery are more significant than its frequency.

Vivid auditory images were reported by B, E, J, and L. F's auditory images were few in number and doubtful in quality. C and D also had difficulty in identifying such images.

B's auditory images, although not great in number on account of his pre-occupation with the auditory aspect of inner speech, were of great vividness. B is musical and very much interested in auditory content. Things heard impress him much more than things seen. During the experiment concrete auditory images of hallucinatory vividness were reported.

In illustration, we have the following: "I caught the sound of a voice singing and although it vanished immediately I was sure that I had heard a real voice and I listened again." (Fragment 30.)

Also, "I saw a little brown man sitting at the base of an oak tree moaning 'full drearily.' I am quite sure that I heard his moaning for it startled me as if someone had really moaned." (Fragment 33.)

Sometimes B would hear a whole fragment read to an auditory accompaniment, an accompaniment which would persist even after the close of the reading.

B shows a pronounced case of colored gustation (6), but so far as he could recall he had never experienced colored audition. It was, therefore, to his surprise that during these tests he several times experienced a fusion of auditory and color content, always, it should be noted, on the imaginal level, in contrast to his colored gustation which is a matter of perceptual fusion.

For example: "This fragment called before my mind the color blue and as I read it I saw clouds with fleecy rifts through which I could see the blue, not of the sky, but of the music." (Fragment 75.) (cf. with E's reports.)

Of all the subjects, E reported the greatest proportion of auditory images which were often of considerable vividness, as shown by the following report:

"The image of a heavy storm approaching,—indicated by the still dark day and by the black clouds in the sky. Auditory images of the roaring wind far-off and of loud claps of thunder. The thunder is so vivid that I actually blinked my eyes." (Fragment 68.)

The most distinctive feature of E's imaginal world was, however, the frequency with which she translated sound into visual terms. This tendency, as that described for B, exemplifies synaesthetic* fusion at the imaginal level. The following examples show the character of E's translation:

"Visual image of an angel just disappearing in the heavens. Auditory image of music which seems to be following the angel in a stream of light." (Fragment 91.)

"Visual image of the interior of a large church with a pipe-organ. Auditory image of the music which is first soft and seems like a white streak of light just above the organ; then the loud thunderous music, which changes into a dark cloud." (Fragment 103.)

In every case but one the translation is from music into light. In the one exception the color changes into music.

"Through the open door are streaming waves of white, blue and pink light, which I hear as sweet, soft music." (Fragment 105.)

J has vivid auditory images which are, however, subordinate to his visual images. The latter give the former localization and setting. J was able to describe particular auditory images with great precision. He was able, for instance, to show, by whistling, the difference between two wind images.

L's auditory images were much more vivid than her visual images but these auditory images were often preceded by cutaneous images which gave them localization. L was more apt to image noises such as the crackling of leaves and of ice, the clang of armor and the rustle of starched skirts than to image tones. The tests left the ears tingling; innervation was evident, with noticeable strain localized in the drum.

M's auditory images were more vivid than his visual images. At times, he reported, such images attain great vividness but such vividness is not to be attained by voluntary effort. In the case of imaged music, especially, he must wait the whim of the moment. Auditory images were not localized, although a number of times particularized and given a memory setting. Once or twice, M was puzzled in attempting to determine whether or not true auditory quality was given in a particular content which had auditory significance.

He reports, "Abstract image of auditory content. No particular image. Auditory experience, just quality without intensity. No localization. Hard to describe." (Fragment 46.)

K, C, and H found their auditory images in no way comparable to their visual images for vividness or importance. Such images occurred in a visual setting which gave them their localization. A's auditory images although of considerable vividness were also definitely subordinated to her visual images.

*Note 4:—Synaesthesia and the adjective synaesthetic, are in this study used to refer to a translation of one sense-quality into another, and not as by Miss Martin in "Ueber aesthetische Synaesthesie," for the arousal of an auditory or other pseudo-sensation as part of a visual percept.

D is highly interested in auditory content and is much more sensitive to the auditory than to the visual arts, but except for the auditory aspect of inner speech, auditory content does not play a great part in her reactions to poetry. An auditory suggestion would almost invariably bring on the attitude of auditory attention with distinct consciousness of strain in the ears, but usually would develop little true auditory content. With the induction of auditory attention, consciousness would at once be besieged in the most distressing way by sounds in the immediate environment, such as the hissing of the steam-pipes, the ticking of a watch, or the murmur of the wind. In listening to a speaker, D is often obsessed in a similar way by the sheer auditory quality of the voice.

Auditory images F experiences with great infrequency and then apparently only spontaneously, as she was unable to call them up by effort. F often reported a failure of auditory imagery with a definite consciousness of auditory meaning. Sometimes she inferred sound from the visual presentation. Thus the movement of the lips of a speaker or the waving of handkerchiefs on the part of a cheering multitude were sufficient to convey the auditory meaning. Again, auditory content was translated into kinæsthetic terms. L reported that she does not imagine music in auditory terms but she "feels" that she has just heard music.

She writes: "I do not hear it thunder, but I have a distinct feeling that it has thundered." (Fragment 68.)

On one occasion F reported that she heard the echo of a trumpet rather than the trumpet itself. A rather odd statement of the feeling of auditory attention without definite auditory quality is found in the following statement: "I have just heard a funeral dirge but I do not hear it now. I never have an auditory image at the present moment."

c. *Olfactory and Gustatory Imagery.*

Olfactory imagery was important only in the case of A, E, and L.

A's olfactory images were both profuse and vivid. Such images she ranks in vividness next to her visual and cutaneous images. The odor of grass and leaves and flowers is for A an essential part of every landscape, perceived or imagined. She ranks such images high on the aesthetic side. Frequently in the test she experienced a mixture of many odors and in at least one instance an olfactory hallucination.

E's olfactory images were also frequent and vivid. They possessed, however, much less aesthetic value than those of A. By means of such images, matter of fact details were often introduced into scene. Thus in a banquet scene the odor reported by E is that of roast-beef; and in another scene it is the smell of cooking cabbage!

The frequency with which L reported olfactory imagery was surprising. For L such imagery was an essential part in the aesthetic and affective reaction.

Of the other subjects, B found difficulty in distinguishing olfactory from organic content. The oppression that accompanies the heavy odor of hyacinths is, for example, more easily identified than the true olfactory imagery.

Four of D's olfactory images occurred on the same day, were similar in quality, and of hallucinatory vividness. It was thought that the apparent images must be due to the presence of some slight stimulation which became evident when once the olfactory attention was induced. Many weeks later, however, on rereading these fragments, D experienced the same hallucination. In general, D is unable to image odors voluntarily, although such images when they occur spontaneously are of great vividness.

Gustatory images were of little significance in these reactions, since only 22 were reported by both groups, during the whole course of the experiment.

d. Cutaneous Imagery.

Such imagery was significant for A, D, E, G, and L. L showed a pre-occupation with cutaneous material that, in the writer's experience, is very unusual. A, it is true, gave nearly as great a number of cutaneous images, but such images in A's case were subordinated to visual images, while in the case of L, cutaneous images constitute the core of the imaginal reaction. Thus L reported that flowers were imaged primarily in cutaneous terms,—the felt texture of the flower-petal, the felt roughness of the stem being the essential factors. These tactile images of L's seemed capable of being objectified in a most peculiar way.

Subsidiary to cutaneous images there appeared, in imaging a flower for instance, olfactory images, while the visual side might be reduced to a mere flash of color. Even auditory content was subordinated to cutaneous. The cutaneous image of the wind precedes and arouses the auditory image. A "rustling curtain" is first fingered, then heard.

The nature of L's imagery is shown by the following report: "Odor of sunflower. Cutaneous feeling of roughness on face and hand. Warmth of sun felt; coolness from snow. Contrast between warmth and cold makes one shiver. Contrast too strong to be pleasant." (Fragment 37.)

With A the cutaneous image of the wind is a favorite image. In the course of the experiments she reported eighteen images of the wind. Her backgrounds are enlivened by its presence. A also reported empathic cutaneous images, such as the feeling of plunging her hand into cool clover or dewy grass.

D showed some tendency to translate touch-content into visual terms. She is the only reagent of either group who makes the translation suggested by Keats in the phrase, "Touching with dazzled lips her starlight hand."

The report on this fragment reads: "Vague image of a dark form sinking to its knees. Then a feeling of light on the lips which burn and visual picture of a white and bright hand. I actually seem to touch light with my lips. Throughout there is a feeling of visual dazzle, localized on lips." (Fragment 10.)

e. Organic and Pain Reaction.

Miss Martin (10:11) classified the organic sensations reported by her reagents into two groups: (1) Those aroused directly through suggestions given by the picture; and (2) Those that express the affective reaction to the picture as a whole, the pleasure or repulsion that it arouses.

Such a distinction in the organic reactions was also possible in the present test. C, for instance, often spoke of an organic thrill accompanying the reading of certain very pleasurable fragments or of a shiver of repulsion induced by the arousal of some exceedingly disagreeable object of thought. The most frequent organic reaction reported by J was that of organic chokiness, a sensation significant of his emotional reaction to the whole fragment rather than a matter of reaction to a specific suggestion. The same may be said of his tendency to increased salivation.

The organic sensations most easily aroused by suggestion were those of drowsiness, nausea, and dizziness. Such suggestions were effective for all but one or two reagents.

They were particularly effective for D. D reported also respiratory quickening and a peculiar feeling of lightness, of ascension, of floating. A feeling of trance, also reported frequently, was, apparently, due to uncon-

verged eyes. In her case, cardiac consciousness was made acute by every reference to the heart, however unemphatic that reference might be; while an emphasized reference of this kind induced a distinct feeling of suffocation.

G and L also reported frequent consciousness of cardiac sensations. With L, these cardiac reactions were too strong to be pleasant.

B's most characteristic organic reaction was that of actual perspiration of hands; he also reported feelings of suffocation.

Sensations of pain were frequently aroused by suggestion, most noticeably in the case of D. Miss Martin found that such pain was often localized in some weak or formerly injured part of the body (10:10). Several instances of such localization were noticed in the present investigation. Pain localized in the eyes was frequently reported by D, whose eyes are weak, and, very noticeably, on one occasion by C at a time of temporary eye-trouble. B localized pain at the back of the neck where he was troubled with an abscess; and L localized pain in the heart-region and reported that she had experienced previously serious cardiac trouble.

f. Kinaesthetic Reaction.

Kinaesthetic reactions either in the form of an imaginal posture or imaginal movement or in the form of actual sensation of movement or posture was a very significant factor in the reports of D (over 32 per cent. of the total number of images); F (over 25 per cent. of the total number of images); and of M (over 26 per cent. of the total number).

For D the reaction to a fragment was, frequently, chiefly in the form of kinaesthesia, imaginal or actual.

For example, "On" is the key-word. The inner speech dwells on it. I strike a posture, breath held slightly. There seems to be a slight movement in the eyes as if accommodating themselves for distant vision. Also a slight visual streak from the eyes out. 'Flared' involves a kinaesthetic feeling of the mouth cavity being extended and distended as with light. With 'stately' there is a fleeting posture; then a kinaesthetic feeling of moving on and on. The last line gives a feeling of opening the eyes wide. There is release of tension and respiratory expansion." (Fragment 6.)

Consciousness of eye-movement was very pronounced for D and other movements were frequently localized in the eyes.

Kinaesthetic content is, in general, very essential in F's reactions. At times, movements, easily perceivable by an observer, fail to come to consciousness and under such circumstances F finds difficulty in reporting her reaction. During silent reading articulatory movements were very apparent and often the rhythm of a fragment was beat with the hand.

M's meaning is frequently carried by kinaesthetic material. Kinaesthetic empathy was frequently reported by him. He identified himself kinaesthetically with waving flowers, jumping grasshoppers, palpitating trees and the like. Miss Martin observed that difficult or novel movements were more apt to be represented visually than felt kinaesthetically. Most reagents see the movements of an animal rather than feel them in person. This observation which held for other subjects of the present test did not apply to M, whose capacity for sympathetic imitation was very extensive.

Miss Martin (10:13) has emphasized the temperamental difference shown in a tendency, on the one hand, to experience localized kinaesthetic images or sensations, and, on the other hand, to objectify such imagery in optical-kinaesthetic form. The person characterized by the former tendency is thought to live in a subjective world; the latter, to live in an outer objective world.

A comparison of the figures in the tables (I, II, III) shows optical-kinaesthetic imagery in excess of felt kinaesthesia (both movement and

posture) in the case of K, J, C, E, G, and, very slightly, in the case of B and I; A, D, F, L, and M show an excess of felt posture and movement. Of these persons, it is very evident that K, for example, is exceedingly objective-minded and very unemotional, while L is exceedingly emotional and more personal in her attitude toward her environment. D and F would definitely be classed as subjective in type.

D's case is of particular interest, since she gives a very high number of both kinds of images. Apparently, however, the optical-kinaesthetic are translations of the true kinaesthetic images since with auditory presentation, where less time is given for the development of latent imagery, the optical-kinaesthetic images are greatly reduced in number. (See Table II.)

4 GENERAL CHARACTERISTICS OF THE IMAGINAL REACTION.

During the course of the experiment, some general characteristics of the imagery of different reagents became pronounced. These temperamental characteristics of the imaginal life as a whole must be of utmost importance in the determination of the affective and aesthetic reaction.

a. Utilization of Memory Material.

The extent to which memory-material in an unmodified form is utilized is one of such characteristics.

Probably the most characteristic feature of K's imaginal life is the extent to which she employs memory material, particularly memory of very recent experiences. She would seem to live very much in the present. The visual and auditory images called up during the course of the experiment were in nearly half the cases memory images with a very definite time localization. Nearly two-thirds of such memory images were of recent experiences, usually dating back but two or three days. Every one of the eight olfactory images reported possessed a definite memory-setting, although in this case only three of the eight images represented recent experiences.

J also made much use of memory material. Thus 35.9 per cent. of his visual images were reported to be definite memory-images. But in contrast to K, J's memory-images were reproductions of old experiences, referred, that is, to a date more than a year back.

I also furnished a large number of memory images, 26.1 per cent. Recent experience was here important. But unlike K, who reproduced the recent experience in detail, I's recent memories were often generic rather than specific, that is, I was aware that the image was a reproduction of one or more recent experiences but he did not localize the memory definitely in time.

C gave a definite place-localization of imagined scenes, as has already been stated, and showed a tendency to stereotype imaginal material.

Often in the reports from different subjects the reconstruction of memory material was apparent; the subject reported that the original experience had been consciously modified.

Now the utilization, to any extent, of unmodified memory material or of stereotyped images must be very significant of the type of mind. The extent, also, to which one uses old, habitual, or recent experience must also be of great importance.

Binet (3:185f) found in his tests upon his daughters that the utilization of recent experiences was characteristic of the practical observing type such as his daughter Marguerite, while the utilization of old or of fluid material characterized the more poetical, more subjective type, as exemplified by his daughter Armande. In the present test K, who made precise use of recent experience, was exceedingly matter-of-fact and practical.

b. The Background.

Another interesting individual peculiarity was the variation in the richness of the background upon which the various images appeared. C, as mentioned above, made extensive use of a background, usually an habitual one or one suggested by his environment of the moment. A, however, laid greatest stress upon her imaginal backgrounds. They were in a sense stereotyped but are noteworthy for their poetic form and richness of tone-color.

A description at some length in A's own words seems worth while.* "There are a few definite visual backgrounds. The foreground or center of the picture I fill in new every time, but the surroundings are the same and include about as much as I could really see if I were looking at such a scene. The colors, sizes, and distances are very realistic. I call them (the backgrounds) visual, but, as a matter of fact, I think there is none that does not have some regular accompaniment of warmth or coolness or wind or rain; almost all include olfactory images and some call up sound. The strongest images are in the order given, visual, tactual, olfactory, and auditory. I think there is always a feeling of my position and sometimes there are kin-aesthetic images.

"Any clear or definite picture either calls up one of these backgrounds, or else makes a new one of its own. A confusing description, or one that it is hard to image, has no background at all, and breaks up quickly.

"(a) The most common background is a meadow or meadows filled with flowers, usually white clover. There are a few rail-fences, and a good many little woods or clumps of trees in the rear part of the picture. The country is slightly hilly, and there is a blue sky with some light clouds. Everything is bright with sunshine, and there is a little cool breeze that sets all the flowers nodding. Sometimes I hear the trees rustling. This is usually an early morning picture. [Utilized for fragments 2 (plus rain), 3, 8 (plus rain), 49, 71, and 84.]

"(b) This is a variation of (a), much the same except that I am facing in a different direction. There are steeper hills and the woods come down almost to where I am standing. A little brook flows out of the wood and down past me, through the meadow. There are many more flowers than in (a); it seems to be earlier in the spring and much later in the day. [Utilized for fragments 16, 19, and 78.]

"(c) Every sunrise or dawn image fits into a picture of wild hills and blue mountains under a great rosy sunrise. I am looking straight east, where the sun comes up over the highest mountain. There is a kind of 'mackerel' sky, and the clouds are all on fire with color. Everything is cool and hushed but after I have thought about it for a minute or two, a little breeze comes up, and the colors seem to grow more and more vivid. I cannot make this background last so long as the others. [Utilized for fragments 67 (with variations), 79, and 92.]

"(d) When I read about sunset, I usually see a sky full of rosy clouds, above a country of low green hills. After a while, the color contracts until it is all in one place, and there is a great dusky coolness over everything, so sweet that I can taste and smell it,—it is a kind of vague image that a real sunset usually calls up. [Utilized for fragments 57, 68, and 89.]

"(e) This is a picture of bare brown hills and hollows, very stony, with a great wind rushing over them. It is very sunny, but the picture is mostly one of wind, with tactual, temperature and auditory images and a very pleasant emotional coloring. [Utilized for fragments 28 and 29.]

"(f) This is a queer picture that I get when the description is too abstract for any other background and yet definite in the one image that it

*Note 5:—I wish to express my thanks to Miss Katherine Taylor for her kindness in writing out these backgrounds.

calls up. I seem to be looking at something in space, with great depths of air behind it, and this last picture is full of wind. [Utilized for fragments 17, 20, 21, 27, and 105.]

"(g) A picture of yellow wheat-fields with much sunshine and wind. [Utilized for fragments 14 and 97.]

"(h) The interior of a church or cathedral, undoubtedly composed of memory elements which are built up into new combinations, for I have never seen a church exactly like it. I am standing in the aisle not far from the chancel. All visual; beautiful light and shadow effects. [Utilized for fragments 6 and 90.]

"(i) A thunder storm in the mountains. [Utilized for fragment 74.]

"(j) Another storm picture, very odd. I seem to see the storm up in the clouds somewhere; there are great dark depths of cloud and sudden illuminations of lightning. A great deal of sound (thunder), wind, and rain, and many tactual and thermal images. [Utilized for fragments 12, 45, 80.]

"(k) An image of hills very far below me, with a great crowd of people singing and shouting. Auditory images, much sunshine, and great depths of air. [Utilized for fragment 41.]

"(l) An autumn picture much like (b), very highly colored and sunny. Tactual and olfactory images. [Utilized for fragment 33.]

"(m) A frosty morning. Visual, temperature, tactual, and auditory images. [Utilized for fragment 86.]

"(n) A mediaeval picture, first imagined when I read Mark Twain's 'Joan of Arc,' eight or nine years ago. One end of a hall blazing with sunshine, people in mediaeval dress, heralds with trumpets. [Utilized for fragment 88.]

"(o) In a great evergreen forest; dusk, warmth, the odor and rustle of trees. [Utilized for fragment 90.]

"(p) A wood of young trees just leafing out in the sunshine, with little brooks flowing through it. Olfactory, tactual, and auditory (children's voices)." [Utilized for fragment 102.]

The records show that imaginal reactions for which there were no backgrounds were rarely pleasant. The majority of such reactions were indifferent. Twenty-five fragments called forth new backgrounds; these new backgrounds were less frequently associated with pleasantness than were the old backgrounds. Backgrounds (a) and (c) occur with particularly pleasing fragments.

c. *Types of Imagination.*

The degree and kind of imagination revealed in the different reports is also interesting. A possesses considerable literary ability and her reports show much imagination. Her imagination must, however, to use Ribot's term, be called "plastique" (13:153f), since her visualizations are vivid and concrete and the spatial relationships and tactile values are definite. She demands clear and vivid imagery from the poet; definitely realizable meanings. Far-fetched analogies or synaesthetic comparisons of sights to sounds are either disagreeable or ridiculous.

In contrast to A's plastic images are those of D, which also show imagination but are of the "diffuente" type, to use Ribot's term again (13:163f). D's flowing fleeting images enable her to appreciate certain metaphors and peculiar analogies that A finds disagreeable. F's imagery is also vague with contours washed away, as is D's. The aesthetic preferences of these two subjects are often similar. Both find mood poetry delightful.*

*Note 8:—It is relative to the "diffuent" type of imagination that the writer finds difficulty in accepting Perky's experiments as adequate (19).

B's images were often unexpected and whimsical, with fantastic elements. Probably the word "fanciful" rather than the word "imaginative" characterizes the nature of his imagery.

M's reactions were also imaginative, but with an emphasis on the kinaesthetic side. His images were diffuent and his preference was for the mystic in art. The mystic he described as the vague, with contours washed away; there is an opening up of perspective, a lack of control of all meaning, a sense of the cosmic.

More than any other subject, M cited aesthetic associations as part of his reaction to the fragments read. This rise of associations, he reported, gives bigness to the world; personal relationships are enlarged. For example we may take his report on fragment 34: "Turrets mirrored in lake. Towers of Camelot. Mediaeval emotional tone. In thought, the mediaeval period."

d. Spontaneous and Voluntary Imagery.

The degree to which imagery is under conscious control would seem to be an individual characteristic of some importance. B frequently reported that his images were wholly unexpected and that they were as novel to him as to the experimenter. He showed, however, considerable capacity in calling up voluntarily images suggested. One morning he appeared for work in a very feverish condition which preluded a serious sickness. On this occasion, he experienced rich visual imagery of extraordinary vividness, characterized by brilliancy of light and color and by its imaginative value. These images were novel and uncontrollable. More than once B expressed curiosity as to the course of an image and was disappointed if the image vanished without effecting a solution of a problem-situation. During the same session, auditory images were hallucinatory in their vividness.

Of all the subjects, D and M appeared to have least power of voluntary imaging. M reported that at times he experiences auditory imagery of great vividness but that he is not able to call such images up voluntarily. For D, the lack of control over imagery is very pronounced. Spontaneous imagery is both very much more varied and more intense than is voluntary imagery. On occasion, both visual and olfactory images become extraordinarily vivid, but no amount of effort can bring this about. In this connection, the importance for both D and M of kinaesthetic material may be emphasized and brought into connection with the conjecture that the types of invention characterized by Ribot (13:129f) as combinative and intuitive may represent a dominance of sensory control for the one and of motor control for the other. It would be interesting to test, on the one hand, the manner of invention of M and D and, on the other, that of A. The observation of the writer would be that M and D are strongly intuitive in type and that A is combinative. In this connection it should be recalled that A's type of imagination is plastic; D's and M's are diffuent.

e. Self-Projection.

An individual difference, probably of very great significance, is to be found in the varying frequency with which reagents projected themselves into the fragments and the form assumed by such self-projection. The writer has described in some detail in a forthcoming article in the "Psychological Review" the forms that such self-projection may assume. The principal forms are as follows: (1) Visual self-projection, more or less detailed, without kinaesthetic self-reference; (2) Visual self-projection, with kinaesthetic self-reference, the kinaesthetic factor sometimes coalescing with the visual self, sometimes referred to the actual body, sometimes alternating with the visual self; (3) Kinaesthetic self-reference, either localized

or projected objectively. In the latter case the projected kinaesthetic self may coalesce with a visualization of some object or person described in the poetic fragment; (4) Organic or emotional identification of self with some object or person described.

The most noticeable case of frequent and detailed visual self-projection was found in the case of E, who appeared in characteristic poses appropriately dressed. Social consciousness was often evident in these reports of the visualized self. Visual self-projection also occurred with great frequency in the case of J, whose orientation as the visualized self and as observer of this visualized self was often so definite as to constitute a double self-reference. I's visualization of self was imagery of bits of the body in isolation; his visual self often alternated with a kinaesthetic self. A break between the visual and the kinaesthetic self was also reported by F and C.

Visual self-projection was rare and very schematic and vague for B, A, D, L, and K and altogether lacking for M. B, A, D, and M reported much kinaesthetic and organic self-reference, while A and L also employed considerable cutaneous reference.

The question raised above as to the relation of kinaesthetic and optical-kinaesthetic imagery to temperament may be raised a second time relative to the kinaesthetic and visual self. The latter certainly appears a more objective, less intimate experience than the former. So far as literary *Einfühlung* is concerned, it would appear especially in those cases of kinaesthetic self-reference which are objectified in some object or person. Such objectification of kinaesthesia was often reported by M.

5. THE INNER SPEECH.

An analysis of the aesthetic effects of poetry demands consideration of the inner speech as the medium of expression, the sensuous side of the art.

Mueller-Freienfels (11) has distinguished two forms of aesthetic reaction, the sensorial and the imaginative. In the first form, interest is centered in the sensuous medium of expression; there is delight in pure color, bare auditory quality, sheer rhythm. In the imaginative reaction, the representative factors are of higher importance; one enjoys the portrayal of emotion, the imitation of nature and of human life, the intimation of spiritual truths.

Poetry, on the sensuous side, employs rhythm and the auditory-motor content of external or of inner speech. It is an auditory-motor art allied to music. Its sensuous content may be employed mainly as a carrier of meaning, visual or other imagery, or may have value in itself and for itself alone. There are, for example, forms of lyric poetry in which the auditory content and the rhythm are its chief reason for being. There are poets who aim at creating sheer word-music, who use words not indirectly as symbols of meaning but immediately as musical notes. In general, however, poetry is conceived as an imaginative art, with individual variation in the degree of interest manifested in the auditory and rhythmic content. A high degree of interest in the latter content is shown by delicate susceptibility to assonance and alliteration, to rhyme and rhythm, with enjoyment of pitch, tone-length, tone-color.

The imaginative reaction to poetry varies with the imagery of the reader. There may be an attempt at complete visual translation of the words on the part of the visual-imaginative reader, while the reader of the auditory-imaginative type may reproduce the cadence and speech of the speaking person and rejoice in associations called up through similarities and analogies of sound. The onomatopoetic possibilities of poetry, however subtle, are appreciated by such readers. Not only the imitation of the sounds and

rhythms of nature by words appeals to them but also the attempt to reproduce by words the timbre of the human voice when dominated by a given emotion.

From the reports gathered in the present investigation, an effort was made to determine the value of the inner speech for the aesthetic reaction of each reagent, the extent, that is, to which each found himself absorbed in mere auditory or kinaesthetic verbal content, or, if he belonged to the imaginative-auditory type, the extent to which he surrendered to onomatopoeic effects or yielded to the dramatic possibilities suggested by the fragments.

In any case, the form of the inner speech of any given individual is significant. In general, the auditory, the visual, and the vocal-motor form, with or without auditory accompaniment, may be distinguished. Variations in the form of the inner speech with variation in the given situation and peculiar complications of one form with another are to be noticed. Town (16:127) has been able to describe such complications by the relief into which they are thrown by their exaggeration in abnormal cases. There are cases of internal soliloquy or reverie in which probably there are strong kinaesthetic elements; there are cases of internal dialogue in which varied relations may exist between the different characters, depending upon the form of the inner speech. For both characters the inner speech may be motor, but more strongly motor for the first person of the dialogue with whom the subject identifies himself. Or an auditory form of the inner speech may interplay with the kinaesthetic, in which case the subject may identify himself with the motor factor and treat the auditory as an intruder. Again, the inner speech may be wholly auditory, with the possibility given by such form for the intrusion of many voices, with one or none of which the subject identifies himself.

The significance of such varieties of inner speech for literary creation and appreciation must be very great. Thus the auditory inner speech suggests freedom for manifold dramatic impersonations, while the vocal-motor inner speech possesses a personal warmth and intimacy more closely related to the lyric outcry.

Inner speech in visual form is very infrequent. That, to some extent, it is important in the aesthetic reaction is shown in those cases where poets or prose-writers depend much upon the appearance of a written sentence or of a verse-form for their cues in composition, not to mention their dependence upon the graphic form of inner speech. Such writers find great difficulty in composing by dictation. Victor Hugo has been cited as greatly dependent upon visual verbal form, as keenly sensitive to the "physiognomy" of written words. And Gautier says: "For my part, I think that, above all, the phrase demands ocular rhythm." (13:157.)

Kakise in his study of understanding found that the reading of a word in inner speech was general when the word was exposed, that is when there was visual representation of it, while it was infrequent when the word was heard spoken, unless there was difficulty in understanding it. Visual reproduction of a stimulus word when exposed scarcely ever occurred and such visual reproduction was infrequent when the stimulus word was spoken. (8:19f.)

Kakise's reagents found difficulty in making a distinction between the auditory and motor elements in inner reading, although in reading difficult words and phrases most observers noted motor elements. The conclusion is reached that auditory reading, that is, reading without the "consciousness of the innervation or movements of the organs of speech", seems "universal and necessary for the understanding of exposed words or phrases", while motor reading in the sense of "consciousness of the innervation or move-

ment of the organs of speech is not universal. . . . but is limited to some individuals only and with average individuals, to the reading of difficult words." (8:21.)

The distinction between auditory and motor inner speech is no doubt a very difficult one to make. In the present investigation it has been conceived somewhat differently from what it was by Kakise. An attempt was made introspectively to distinguish between auditory and motor content. Frequently, of course, both aspects were present in inner speech, which is auditory-vocal-motor. A sense of personal agency seemed to distinguish kinaesthetic inner speech from pure auditory inner speech, while pure vocal-motor speech may definitely lack auditory quality. The distinction is a difficult one to make and one which leaves open chance for error.

In the present investigation an attempt was made to place the seven subjects of the first group as regards the form of the inner speech. Introspective reports were sought on the one hundred ten fragments which were read silently and the forty fragments that were heard read aloud.

In agreement with Kakise's finding, all seven reagents reported motor or auditory-motor inner speech during visual reading. Three of these reagents discovered no auditory tone to the inner speech; four found the auditory aspect dominant.

With auditory presentation of the fragments, there is found on the part of certain subjects considerable tendency to repeat or to hear echoed in the reader's voice parts of the fragments, either those that are not immediately understood or those that give pleasure, because of verbal beauty. Visual inner speech, which did not occur during visual reading, became pronounced for one subject while listening to the fragments read aloud.

The individual reactions deserve, however, careful consideration as an important part of the aesthetic reaction.

Of all the subjects tested, B is most preoccupied, during visual reading, with inner speech. This inner speech is for him the most important phase of poetry. Other imagery is definitely subordinated to it. If attention be concentrated upon it, it usurps the place of all other imagery. B lays great emphasis upon rhyme and sometimes accents the rhyming words in an uncomfortable fashion. In general, however, his reactions are of the imaginative-auditory type since he hears each fragment recited in the appropriate voice with very little, or, frequently, with no vocal-motor accompaniment.

Frequently the voice heard is his own; frequently it is one suggested by the phrasing of the fragment or one proceeding from some visualized character introduced by B to do the reading. In the one hundred and ten fragments read visually, fifty were heard read in B's own voice which was variously modulated; forty-six were definitely stated to be in voices other than his own. Fourteen times the voice was said to be a feminine voice; fourteen times described as a masculine voice not his own. Once there was a distinct shift from a woman's to a man's voice; once a shift from a child's voice to a man's. There were only two cases of pure visual reading and only eight cases where there was no voice or a voice not attended to.

Such a grouping of results gives, however, little idea of the infinite variation in auditory quality that B introduces into his silent reading. Thus he may modify his own voice so as to make it more melodious. He describes the voices as sweet or plaintive or cruel; nasal or sonorous; matter-of-fact, or measured and dead. Sometimes the effects produced are grotesque as in a fragment from Swinburne in which he hears a child's lisp until he comes to the phrase, "Terrible, full of thunders," at which the voice becomes that of an angry man. One fragment which is read in a dead tone was accompanied by a "piercing wail which rose and fell," and in another fragment, read by a woman, there is a cry at the end of each

line. Often, for B, the visual imagery aroused by a fragment is that of the speaker of the lines heard recited.

B sometimes complained that the intensity of the auditory inner speech obliterated concrete auditory imagery, which is his preferred form of imagery. The question was raised whether with an auditory presentation there would be an increase in the number of concrete auditory images. Such seemed to be the case. B reported, proportionally, a larger number of concrete auditory images in listening to the fragments read than when reading them to himself. It would seem, then, that B found the auditory quality of inner speech a greater hindrance to the arousal of other auditory imagery than was an objective auditory stimulation. Of no other reagent can the same statement be made.

While listening to the fragments read aloud, B got much less auditory inner speech than when reading the fragments silently. In one-fourth of the trials, however, he reported a peculiar echoing of the reader's voice, word by word, an echo which B described as similar to hearing the same note struck at once on two different strings. Such an echoing occurred when B had difficulty in catching the meaning or where there was no translation of the words into concrete imagery. In two or three cases, this echoing became overpowered toward the close of the reading by concrete auditory imagery aroused by the words of the fragment. Thus, in one case, the imaged sound of the roar of the ocean overpowered the echo. In several cases, throughout the reading, even the voice of the reader was so overpowered and an immediate translation of the fragment into concrete auditory imagery occurred.

In five cases, B repeated, in his own voice, portions of the fragments read. Such repetition on B's part seemed to be an attempt to enforce the rhythm or to maintain sounds that were particularly pleasing.

D, also, during visual reading of poetry finds the inner speech strikingly auditory. For D, however, the voice heard is always her own and the motor quality is frequently pronounced. D, as B, often dramatizes the selection but with this difference, she herself is the reader and makes the gestures that B sees the visualized reader make. Pitch and voice-inflection are important for D. A strong rhythm effects a striking organic reaction; it may modify respiration and be felt beating in the hand. D, on occasion, finds it quite possible to enjoy poetry as pure auditory-motor content with little question as to meaning.

Of all the reagents, D laid greatest emphasis upon onomatopoeia, which played a very important part in conveying the auditory quality intended. Thus, while the ringing auditory quality of the lines heard often inhibited a more concrete objective image, the word suggesting such auditory imagery would echo, as it were, throughout the entire line. The following example illustrates this. The fragment (II) reads:

"And the mystic wind went by,
"Murmuring in melody."

In this case the word "murmur" echoes in consciousness to the end of the line. The word itself as a delicate auditory after-image constitutes the accompaniment to the reading. The same effect was noticed with such words as groan, moan, wind, laughing, rustling, music.

Another form of onomatopoeia, which may be called visual onomatopoeia, was reported by D. D does very little visual reading, reading, that is, without the mediation of inner speech. What she describes as visual onomatopoeia is not merely where the word looks its meaning but when it looks the concrete visual image of that for which it stands. Thus the word "laugh" appears to grin, the word "light" dazzles and the word "bowers" looks round.

While listening to the fragments read aloud, D noticed little inner speech except where she echoed in her own voice pleasing words or phrases of which she did not catch the meaning or those for which the reader's voice did not give the correct inflection. Often her attention was obsessed by the sheer auditory quality of the reader's voice.

E's introspections on the inner speech give little detail, except that in visual reading she hears each fragment read in her own voice. When the fragments were read aloud to her, she showed considerable tendency to echo the words in auditory-kinaesthetic inner speech. Such repetition which was noted eighteen times in the forty trials was particularly evident when the meaning of a passage was not at once evident.

G also failed to give detailed observations. Her inner speech is, at times, vocal-motor; at other times auditory-vocal-motor. Sometimes G hears her own voice; at other times a voice other than her own. In listening to the fragments read, there appeared to be very little echoing or repetition of the reader's voice.

During silent reading, C frequently failed to notice any inner speech whatever. When noticed, such inner speech appeared to be kinaesthetic, usually without auditory accompaniment. In the reading of occasional fragments, a word or phrase would flash out auditorially. This auditory imagery appeared to be a method of emphasis. In listening to the fragments read aloud, C showed a varying tendency to focus on the sound of the reader's voice or on the visual images aroused by the words. There was very little tendency to repeat the words heard, although occasionally such repetition occurred when there was difficulty in getting the meaning or when there was a desire to emphasize a particular line. Such repetition was, however, reported only six times during the forty tests.

The inner speech for F is purely vocal-motor, with, usually, very little consciousness even of its motor quality. Sometimes during silent reading actual lip-movement is evident. This occurs when the meaning of a fragment is not at once evident or where the wording of a fragment is particularly pleasant. In the latter case F often vocalizes the fragment several times, "half-audibly." Highly agreeable rhythms F finds herself emphasizing by pointing to the words with a rhythmic movement.

Although there was no auditory quality to inner speech, F sometimes put the words into the mouths of characters described in the fragments. This she did visually; she knew that a character was speaking by the movements of the lips although she heard no words. Again, she was in one fragment aware that cheering was in progress by noting visually the waving of hats, handkerchiefs, etc.

In general, F gets little meaning from hearing anything read aloud. So little is auditory attention developed that in order to understand she must read to herself. Auditory rhythm is, too, less appreciated than motor rhythm. In listening to the fragments read aloud, F showed considerable tendency to repeat in inner speech the words of the reader. She found difficulty in determining whether this inner speech was due to her understanding of the words read or whether the fragment had meaning because of the vocal repetition. Apparently, F repeated by lines when the meaning was clear, skimming these lines in inner speech; but when the meaning was not at once evident, she distinctly articulated separate words. Probably motor inner speech is always present under these conditions, but at times is so automatic as to escape detection. When there was particular difficulty in getting the meaning, F sometimes reported visual verbal imagery.

The inner speech for A during silent reading was kinaesthetic, probably purely vocal-motor. She delights in pleasant combinations of vocal movements and is especially pleased with Swinburne's rhythms. Much concrete

auditory imagery was aroused by the words read but there was no auditory consciousness of the words themselves. A reports that she cannot call up the sound of her own voice, to which she has probably given little auditory attention, as her description of it is very different from that given by other persons. The sounds imaged by her are, chiefly, natural sounds.

One peculiarity noted during silent reading emphasized the importance of visual verbal imagery for A, a most noticeable form of imagery when A heard the fragments read aloud. Large letters occurring in the text were found to magnify the visual images which they aroused. Thus in her report on a particular fragment, A wrote, "Visual image of a gigantic sunflower," this is due to the capital S (for sunflower); large letters always magnify the picture given by the word, unless it is a word that is often capitalized.

In listening to the fragments read aloud, A's visual verbal imagery became very pronounced. Besides such visual translation of the words heard, as though she were actually reading them, A repeated the words in kinaesthetic inner speech. This double verbal accompaniment was reported in almost every trial. It became more pronounced when the meaning of a fragment was not at once evident or when the concrete visual imagery was less distinct than was usually the case. Sometimes words not pronounced by the reader flashed out before the mind's eye as if in explanation or emendation of a passage. This visual inner speech, although with subjects in general a very uncommon form, is an every day matter with A. Certain fragments were noted as giving charming visual verbal effects. A curious example of a visual verbal translation of a synaesthetic fragment came in connection with Swinburne's phrase "Sounds that shine." This phrase immediately appeared to A printed in visual form but in characters of LIGHT.

A's visualized letters are at about reading distance, whence come some peculiar adjustments of the eyes when the visual imagery of a concrete scene lies at a greater distance. The words are visualized in dark print a word or phrase at a time. The background on which the words appear, A is unable to describe. It seems dark as do the letters, but separated from the latter by a space-interval.

Of the second group of subjects, the inner speech was noted for J, I, L and M. For J the inner speech was auditory; many different voices were distinguished. For I it was auditory-kinaesthetic. For M the kinaesthetic side of inner speech was prominent; he showed a strong tendency to read aloud in order to enforce the auditory content. For L the inner speech was kinaesthetic-auditory.

II. DEPENDENCE OF REACTION UPON MATERIAL.

I. LITERARY SUGGESTION.

The images reported in this experiment depend not only upon the individual reactions of the subjects but also upon the suggestions conveyed in the lines read.

According to such writers upon aesthetics as Souriau (14), the images aroused by poetry should be much more vivid than the images of commonplace thought, both on account of the skill with which the suggestion is given and its enforcement by such a semi-hypnotic device as that of rhythm. The breaking up of the poems into fragments as was done in the test under consideration prevented the cumulative effects of absorption in the poetic suggestion. The skill with which suggestions were given remained, however, operative.

Table IV represents an attempt to summarize the number of each kind of suggestion, except the visual and kinaesthetic, contained in the series of fragments that were read, silently (See appendix), and to determine the percentage of successful suggestions in each instance. In every case the words of the fragments are taken at their face value, but, even so, there is chance for error in classifying the suggestions. Such chance for error is greater in the case of cutaneous and organic suggestion than in the case of auditory and olfactory, while it seemed impossible to classify the kinaesthetic suggestions so as to distinguish between the suggestion of optical and that of felt kinaesthesia.

TABLE IV.
PER CENT SUCCESSFUL SUGGESTION. DIRECT VERSUS INDIRECT AROUSAL.

Kind of Suggestion	No. of Possible Images Through Direct Arousal	Per Cent. Successful Suggestion	Total No. of Images	Per Cent. Directly Aroused	Per Cent. Indirectly Aroused
Auditory	1089	46.8	486	88.9	11.1
Olfactory	252	39.3	130	76.2	23.8
Gustatory	127	14.2	22	81.8	18.2
Cutaneous	360	85.5	269	47.6	52.4
Organic and pain	427	30.7	246	53.2	46.8

The table makes it at once evident that auditory suggestion was more frequently successful than any other form given in the table, while gustatory suggestion was least successful.

In the case of every form of suggestion, certain fragments were particularly effective. Thus eleven subjects reacted with auditory imagery to 87, which describes the noise of a waterfall, while ten subjects gave auditory imagery for fragments 11 and 33, both of which are descriptive of the wind. The reports made it very evident that certain auditory images are particularly easy to arouse. The sound of rain and of the bugle-note, the sighing of the wind and the rush of wings, the noise of the surf, the tolling of a bell are imaged without difficulty.

For arousal of olfactory images, vague allusions were found to be less effective than were specific suggestions. Thus, if the odor of the violet or hyacinth be suggested, it is more apt to be successful than the vague suggestion contained in the words "field smells known in infancy," (Fragment 107). Yet Swinburne's phrase, "perfume of songs" (Fragment 53) was effective for six of the twelve reagents. Fragment 46 was the most successful in suggesting olfactory imagery, a reaction reported by nine subjects. Fragment 6 was effective in only two cases. The smell of the rain, of wet grass, and of damp earth and the fragrance of flowers were reported very often. Sometimes the images of flower-odors were reported as specific, such as the image of the fragrance of the hyacinth, of the rose or of the poppy. Certain odor images were, however, describable only in vaguer terms, as "funeral flower" odor, "heavy flower" odor or faint sweet odor. Such odor-images recall the generic images so familiar to us in visual imagery.

Gustatory images were not a frequent form of reaction. The more definite the reference, the more likely it was to succeed. Fragment 109 was the most successful in producing gustatory experience. Eight subjects reported such reaction. Fragment 109 represents a device, frequently employed by Keats, namely, the repetition of a suggestion of a particular kind.

The mention of wind or rain is very effective in the arousal of cutaneous imagery. Some forty tactual images of the wind were reported and some twenty tactual images of rain. The suggestion of warm rain, soft breezes, sodden ground, cold, bare shoulders were highly successful. Fragments 8, 32, 51, and 29 were very effective in the arousal of cutaneous reactions.

Of the fragments containing organic suggestion, 65 is most successful, since nine subjects responded with some form of organic reaction, while eight gave an organic reaction to 17 and seven to 113. Fragment 65 is of particular interest since it embodies a semi-hypnotic suggestion, a device used, it is claimed, by poets, in order to put their readers in susceptible non-critical mood. Judging from the effect on the present subjects, we must concede that these lines, the opening ones of Keats' "Ode to a Nightingale," have exactly the drowsy-trance effect held to be desirable.

Relative to the relation between images aroused directly by suggestion or indirectly through connotation, it should be noted that in this respect the auditory images excel in percentage of direct arousal and the cutaneous in percentage of images aroused indirectly.

Most of the fifty odd auditory images aroused indirectly can be attributed to individual predisposition on the part of the reagent. A few fragments, however, show the capacity for indirect arousal apart from suggestion. Thus fragment 14 conveys an auditory reaction to four reagents although the words do not suggest auditory content. Fragment 55 gives auditory content to two reagents, although the words do not suggest such content directly.

The thirty-one olfactory images aroused without direct suggestion are to be attributed largely to the individual peculiarities of A and L, who furnish 24 of these images. Fragments 2, 49, and 89 convey, however, the olfactory content indirectly and are effective each for three subjects.

The percentage of cutaneous images without direct suggestion is very high; 141 images of this kind are reported. L reacted with cutaneous imagery whenever an out-of-doors suggestion was given. Other reagents also showed a susceptibility to such indirect arousal. Fragments descriptive of either wind or rain were particularly apt to call out such images, even though the wording did not suggest them. Thus 2 (rain) and 11 (wind) give a number of cutaneous images, although by no means as large a number as 8 and 33, where the cutaneous reference is definitely made.

A large percentage of the organic and pain images were also aroused indirectly. In this latter class are included those organic images or sensations which represent the emotional reaction to the fragment as a whole. The organic thrill or repulsion is a form of such reaction. Such reactions were, of course, largely an individual matter. Yet such fragments as 98 and 94 called them out in a number of reagents.

2. THE METHOD OF STYLE.

The attempt to determine the imaginal type of a poet's mind from his literary imagery has proved more or less open to criticism. Lay (9) attempted to deduce the imagery of an author from the imagery aroused in his own mind as reader of the author. But as Colvin has pointed out (5:232), the individual difference in imaginal reaction is so great that the same passage may be interpreted in different terms by different readers; what is translated into kinaesthetic imagery by one person may take visual form for another.

Angell is also skeptical as to any extensive application of the method. He writes: (1:66f.) "The method *may* often give correct results within the narrow field to which it applies, but it is never possible to be sure of these and the outcome is certainly misleading in its indications in many instances."

Such limitations of the method are beyond question. Nevertheless, on general grounds, one would expect an author's style to be so greatly influenced by the kind of imagery, both concrete and verbal, for which he has

the greatest predisposition and by the abstract or specific character of this imagery that such influence would react on the reader.

The more we recognize the disposition of the average man for every sort of imagery while recognizing his predisposition for one or more particular kinds, the more emphasis we are led to assign to material as influencing the kind of imagery aroused. That in poetry the form of suggestion contained in the words is influential is shown by the summary in the preceding section. Evidence as to the effect of the author's imagery upon the reader would be cumulative. While, that is, it would be illegitimate to draw conclusions from the reports of one reader on a few passages of a given author, conclusions might well be drawn from the reports of many reagents differing in imagery predisposition. Certain similarities in reaction must be attributed to the imagery-arousing material and, hence, to the sensory preoccupations, perceptual or imaginal, of the author.

A complete test of the method of style would involve, first, consideration of the extent to which the inner speech of a given reagent is modified by the style of a particular author, and, second, the variations in his imaginal reactions due to the literary imagery of the author.

Relative to the second point the following observations are in order. The one hundred fragments utilized in the test were taken from the following authors: Blake, thirteen (57 lines); Poe, twenty-six (80 lines); Shelley, twenty-five (97 lines); Keats, twenty-three (78 lines), and Swinburne, thirteen (59 lines). In addition, the seven reagents of the first group reported on four additional fragments for Poe (11 lines), four for Keats (13 lines), and two for Swinburne (13 lines). The fragments were, of course, not marked with the name of the poet and with a few exceptions were unrecognized by any of the reagents except D.

Tables V, VI, VII and VIII contain the summary of the following points relative to the imaginal reactions to each poet. (1) The number of each kind of sense suggestion given, omitting the visual and the kinaesthetic; (2) The percentage of successful suggestions; (3) The percentage of images of each kind aroused directly, and (4) The percentage of each kind aroused indirectly. Table IX gives the total number of kinaesthetic and visual images for each poet.

A study of these tables brings out some interesting points. It should be noticed that Poe gives the highest number of successful auditory suggestions; Shelley the highest number of successful olfactory suggestions; Keats the largest number of successful cutaneous images, and Poe the greatest number of successful organic suggestions, with Shelley but slightly behind. Literary critics have often commented on Shelley's preoccupation with odor and his frequent use of it as literary material and on Keats' penchant for cutaneous experience. The results of the present test evidence the skillful use by these poets of their favored material. Poe's successful use of auditory suggestion is not surprising to a reader of his works; one is, however, curious as to the characteristic of his style which gives him such a high power of arousal of imagery indirectly, particularly in the case of olfactory and cutaneous imagery.

Table IX gives the total number of kinaesthetic and visual reactions for each poet under the heads, optical-kinaesthetic, felt kinaesthetic (movement and posture), and visual. Poe, it will be seen, induces an optical-kinaesthetic reaction much more frequently than either a posture or a movement reaction. Moreover, his optical-kinaesthetic images are, relatively to the number of fragments (or the number of lines), more frequent than was the case for the other poets. This preoccupation with visualized movement seems, to the writer, a general characteristic of Poe's poetry.

The results of the experiment would show that such an interpretation is not merely a matter of individual reaction.

Swinburne and Keats give the greatest excess of felt kinaesthesia over optical-kinaesthetic images. This, again, is a result that might have been anticipated since the rhythmic quality of Swinburne's poetry, and the "statuesque" quality of Keats' have been matters of comment.

Relative to the number of visual images, it is evident that Poe, Shelley, and Keats excel Swinburne and Blake,—a statement which holds whether the proportion of images be reckoned for number of fragments or number of images.

Relative to the vividness of the visual imagery, Poe and Shelley excel as shown by the following estimate. The number of fragments marked as giving either very vivid or moderately vivid visual imagery by the Chicago group were summarized with the following results: Poe's percentage of vivid images per fragment was 2.15 or, per line, .7; Shelley's percentage per fragment, 2.08, per line, .5; Keats', per fragment, 1.34, per line, .43; Swinburne's, per fragment, 1.38, per line, .03; Blake's, per fragment, 1.69, per line, .38. Put in another way, the pre-eminence of Shelley and Poe in this respect is shown by the fact that they furnish 57 per cent of the vivid and moderately vivid visual images, although in proportion of whole number of lines to the total number they constitute only 48 per cent.

The question of plastic and diffuent imagination which was considered above relative to the subjects may be raised again in connection with the poet's type of invention. On the basis of the tests the only assertion that may be ventured is that Poe with his excess of visual images, particularly of optical-kinaesthetic over felt kinaesthetic reactions, appears to be plastic in imagination,—as in fact he has been described. His method of composition, if we may trust his own reports, was highly self-conscious, a fact of great interest in the present connection.

TABLE V.
AUDITORY SUGGESTION.

Poet	No. of Possible Images. Suggestions X No. of Reagents	Per Cent. Successful Suggestions	Total No. of Images	Per Cent. Images Aroused Directly	Per Cent. Images Aroused Indirectly
Blake	144	42.4	65	93.8	6.2
Shelley	180	45.6	89	92.1	7.9
Keats	258	43	119	93.2	6.8
Swinburne	203	32	70	92.9	7.1
Poe	254	51.6	143	91.6	8.4

TABLE VI.
OLFACTORY SUGGESTION.

Poet	No. of Possible Images. Suggestions X No. of Reagents	Per Cent. Successful Suggestions	Total No. of Images	Per Cent. Images Aroused Directly	Per Cent. Images Aroused Indirectly
Blake	0	5	100
Shelley	156	43.6	73	93.2	6.8
Keats	36	33.3	18	66.7	33.3
Swinburne	24	33.3	14	57.1	42.9
Poe	36	30.6	20	55	45

THE IMAGINAL REACTION TO POETRY.

TABLE VII.
CUTANEOUS SUGGESTION.

Poet	No. of Possible Images. Suggestions X No. of Reagents	Per Cent. Successful Suggestions	Total No. of Images	Per Cent. Images Aroused Directly	Per Cent. Images Aroused Indirectly
Blake	24	45.8	32	34.4	65.6
Shelley	156	25	60	65	35
Keats	84	62.4	68	64.7	35.3
Swinburne	60	26.7	39	56.4	43.6
Poe	36	33.3	70	17.1	82.9

TABLE VIII.
ORGANIC AND PAIN SUGGESTION.

Poet	No. of Possible Images. Suggestions X No. of Reagents	Per Cent. Successful Suggestions	Total No. of Images	Per Cent. Images Aroused Directly	Per Cent. Images Aroused Indirectly
Blake	72	23.6	27	63	37
Shelley	72	34.7	54	46.3	53.7
Keats	120	30.9	60	61.7	38.3
Swinburne	72	26.4	39	48.7	51.3
Poe	91	36.3	66	50	50

TABLE IX.
KINAESTHETIC REACTIONS.

Poet	Optical-Kinaesthetic	Felt-Kinaesthetic			Visual
		Movement	Posture	Total	
Blake	43	28	17	45	121
Shelley	66	48	21	69	257
Keats	74	61	45	106	248
Swinburne	28	34	22	56	138
Poe	119	49	39	88	286

III. THE AFFECTIVE JUDGMENT.

I. IMAGERY AND THE AFFECTIVE JUDGMENT.

A classification, in one experimental session, of the fragments, first, under the rubrics +3, very pleasant; +2, moderately pleasant; +1, slightly pleasant; 0, indifferent; ?, partly pleasant, partly unpleasant; -1, slightly unpleasant; -2, moderately unpleasant; -3, very unpleasant, and, secondly, relative to the imagery, under the rubrics, III, very vivid; II, moderately vivid; I, faint; 0, no imagery of the given kind, as was done by Miss Martin's subjects (10:18), enables one to determine the part played by imagery in the enjoyment of poetry. Table X shows the influence of the various degrees of imagery upon this judgment for all the Wyoming subjects except G, who did not make the groupings. The grades of pleasant-unpleasantness are represented by +3, +2, +1 and so on, and the vividness of the imagery is represented by III, II, I, and 0. Glancing at the table one is able to see the number of fragments for each reagent that gave vivid imagery, that were also found to be very pleasant, moderately pleasant and so on.

The combined results of the table show that imagery and, particularly, vivid imagery, is an important factor in the affective judgment on literature, although, perhaps, less important than in the judgment on pictures (10:20). It is apparently much more significant than Betts concluded from his questionnaire investigation (2:90). Imagery is not, however, the only factor

TABLE X.

Reagent		-3	-2	-1	0	?	+1	+2	+3	Total
A	III	24	10	3	3	0	2	2	3	47
	II	0	1	2	3	1	0	0	0	12
	I	1	3	7	8	0	12	9	6	46
	0	0	0	0	5	0	0	0	0	5
Total...		25	14	12	24	1	14	11	9	110
B	III	5	5	3	2	2	4	5	6	32
	II	1	5	6	4	7	7	3	2	35
	I	0	3	5	8	5	4	0	0	25
	0	0	0	2	11	3	1	1	0	18
Total...		6	13	16	25	17	16	9	8	110
C	III	16	4	3	0	1	2	2	1	29
	II	7	5	4	7	4	5	0	1	32
	I	3	3	2	11	4	5	2	1	31
	0	1	2	1	10	1	0	1	1	17
Total...		27	14	10	28	10	12	5	4	110
D	III	13	10	3	0	2	1	1	1	31
	II	7	8	4	3	3	2	1	2	30
	I	6	15	6	1	3	3	0	1	35
	0	4	4	5	0	0	0	0	1	14
Total...		30	37	18	4	8	6	2	5	110
E	III	3	5	6	2	6	3	1	0	26
	II	9	9	5	3	1	6	2	4	39
	I	3	3	9	2	5	9	6	2	38
	0	0	1	0	1	1	2	1	1	7
Total...		15	18	19	8	13	20	10	7	110
F	III	1	1	6	0	0	0	0	0	8
	II	2	3	5	2	2	1	1	4	20
	I	0	5	10	4	7	8	4	2	40
	0	1	2	6	6	4	6	10	7	42
Total...		4	11	27	12	13	15	15	18	110
Com- bined	III	62	35	24	7	11	12	11	11	173
	II	26	31	28	27	18	21	7	18	169
	I	13	32	38	34	24	41	21	12	215
	0	6	9	14	33	9	9	13	10	108
Total...		107	107	102	101	62	83	52	46	600

influencing the judgment. There are, moreover, individual differences in the degree to which it serves as a determinant of this judgment. A's results show most clearly the effect of vividness of imagery (in her case the classification is determined chiefly by visual imagery) upon the judgment of pleasantness. Vivid imagery may lead to the judgment unpleasant if the visualization results in a fantastic or ridiculous picture, such as often happens from A's tendency to visualize all phrases, however abstract or figurative. Faint visual imagery resulting from an abortive attempt to visualize the situation also gives unpleasantness. On account of the vividness and persistence of her imagery, A prefers a detailed and prolonged description to one that suggests rapidly shifting images. Keats' device of repeating a given suggestion, as in 19, she finds very unpleasant; the richness of imagery in which it results is fatiguing, cloying.

In testing the Chicago subjects, three different arrangements on the basis of the affective judgment were procured in connection with one arrangement each for vividness of (1) visual imagery, (2) auditory imagery, and (3) of kinaesthetic, organic, cutaneous, and olfactory imagery, in the hope not only of showing the relation of imagery to the affective judgment

but also of determining how far the individual differences in imagery pre-disposition influence the affective judgment.

The imagery reports showed that I and J possessed rich and varied imagery with, however, visual imagery as the chief determinant. K was definitely visual, with little interest in content other than visual. L was preoccupied with cutaneous, olfactory, organic, and auditory material. M showed a strong disposition to react with kinaesthetic content. How far, one questions, would such individual differences affect the aesthetic reaction? To what extent would the appeal to the predispositional form of imagery be particularly effective? Or would an appeal to less habitual content be more pleasing?

The attempt to answer these questions was not wholly successful, partly because of the fact that with the rereading of the fragments, the second and third arrangements were at a disadvantage. This was particularly true in the case of M, who on the first reading found twenty-seven fragments indifferent, forty-four indifferent on the second reading, and sixty-five on the third. He reported also that the richness of kinaesthetic and organic imagery was by the third reading greatly reduced because of his familiarity with the fragments. Even so, the effect of his preferred form of reaction is evident in the third table. To a great extent, however, M's judgment of pleasantness or unpleasantness was determined by the logical congruity or incongruity of the wording.

TABLE XI.
VISUAL INTENSITY.

Reagent		-3	-2	-1	0	?	-1	-2	-3	Total
I	III	9	0	2	0	1	2	0	0	14
	II	6	4	4	0	3	0	0	0	17
	I	14	9	5	7	16	4	0	0	55
	0	0	4	2	2	1	2	0	0	11
Total...		29	17	13	9	21	8	0	0	97
J	III	5	6	4	1	9	5	1	2	33
	II	4	9	7	5	8	2	5	1	41
	I	0	1	9	4	5	3	1	1	24
	0	0	0	1	1	0	0	0	0	2
Total...		9	16	21	11	22	10	7	4	100
K	III	5	6	2	1	1	2	2	0	19
	II	5	5	3	3	1	2	2	3	24
	I	0	3	2	2	1	0	4	7	19
	0	2	10	5	4	0	2	3	12	38
Total...		12	24	12	10	3	6	11	22	100
L	III	0	2	0	0	0	0	0	0	2
	II	5	6	5	0	3	2	4	2	27
	I	3	3	3	4	11	7	4	2	47
	0	1	3	2	1	6	3	7	1	24
Total...		9	19	15	5	20	12	15	5	100
M	III	0	0	0	0	0	0	0	0	0
	II	3	0	4	1	0	2	1	1	12
	I	1	5	3	6	6	6	2	0	29
	0	1	3	12	20	6	10	5	2	59
Total...		5	8	19	27	12	18	8	3	100
Com- bined	III	19	14	8	2	11	9	3	2	68
	II	23	24	23	9	15	8	12	7	121
	I	18	26	27	23	39	20	11	10	174
	0	4	20	22	28	13	17	15	15	134
Total...		64	84	80	62	78	54	41	34	497

TABLE XII.
AUDITORY INTENSITY.

Reagent		-3	-2	-1	0	?	-1	-2	-3	Total
I	III	2	1	0	0	1	0	0	0	4
	II	4	2	2	0	0	0	0	0	8
	I	8	2	2	2	3	0	0	0	17
	0	18	12	11	8	14	7	0	0	70
Total....		32	17	15	10	18	7	0	0	99
J	III	1	3	0	0	2	1	3	0	10
	II	1	4	4	2	6	2	1	2	22
	I	0	3	5	3	6	4	2	0	28
	0	3	5	11	9	10	5	2	0	45
Total....		5	15	20	14	24	12	8	2	100
K	III	1	2	1	4	1	2	1	0	12
	II	1	1	1	1	1	2	1	1	9
	I	3	1	0	1	0	1	0	0	6
	0	3	17	11	8	11	14	5	4	78
Total....		8	21	13	14	13	19	7	5	100
L	III	0	1	1	0	1	2	0	1	6
	II	2	2	7	0	3	5	1	0	20
	I	2	9	10	0	8	6	3	1	39
	0	0	2	7	5	6	7	3	2	32
Total....		4	14	25	5	18	20	7	4	97
M	III	1	3	1	0	0	0	0	0	5
	II	1	1	3	3	1	0	0	0	9
	I	0	3	6	5	1	1	1	0	17
	0	1	4	13	36	3	10	2	0	69
Total....		3	11	23	44	5	11	3	0	100
Combined	III	5	10	3	4	5	5	4	1	37
	II	9	10	17	6	11	9	3	3	68
	I	13	18	23	11	18	12	6	1	102
	0	25	40	53	66	44	43	12	6	289
Total....		52	78	96	87	78	69	25	11	496

Tables XI, XII and XIII summarize the results for the Chicago subjects. With K, it is evident that visual imagery contributes to the judgment of pleasantness to a higher degree than does any other form of imagery reaction. K reports that she enjoys painting but does not care at all for music. With I, visual imagery and cutaneous, organic, and kinaesthetic reactions were more significant than the auditory. J also shows the effect of visual imagery upon the affective judgment; his case is, however, interesting in that vividness of the different sorts of imagery apparently contributes to the ambiguity of the affective judgment, the reaction is partly pleasant, partly unpleasant. L showed the effect upon her affective judgment of organic, cutaneous, olfactory, and kinaesthetic material. She often commented upon such material as strikingly pleasant, or, if too intense, and reproduction of a disagreeable sensation, as unpleasant. These results show the effect upon the judgment of the type-form of imagery.

The combined tables makes very evident the affective waning of the material with repetition. Visual imagery appears in general to have more influence in determining the pleasantness-unpleasantness of the fragments than has other kind of imagery.

The influence of the different forms of imagery upon the judgment of pleasantness may be shown for both groups by the following observation. If the twenty fragments that are held to be the most pleasant of the one hundred fragments, determined by their position in an arrangement

TABLE XIII.
INTENSITY OF ORGANIC, OLFACTORY, POSTURE AND MOVEMENT REACTIONS.

Reagent		-3	-2	-1	0	1	2	3	Total
I	III	4	4	1	0	1	0	0	10
	II	9	4	5	1	0	2	0	21
	I	10	11	9	1	5	1	0	37
	0	8	6	10	8	2	3	0	32
Total...		26	25	25	10	8	6	0	100
J	III	1	1	1	0	6	2	1	12
	II	0	8	8	2	10	2	1	27
	I	0	4	8	2	7	7	1	26
	0	0	4	8	13	5	5	0	35
Total...		1	12	20	17	28	16	3	100
K*	III	0	0	0	0	0	0	0	0
	II	0	0	0	1	0	0	0	1
	I	0	2	1	3	1	0	1	8
	0	4	6	12	17	17	20	7	90
Total...		4	8	13	21	18	20	7	99
L	III	4	8	2	0	5	5	4	24
	II	1	8	5	0	2	11	2	30
	I	0	7	10	0	8	6	2	33
	0	0	2	5	2	3	1	0	13
Total...		5	20	22	2	18	23	8	100
M	III	0	0	0	0	0	0	0	0
	II	3	2	1	9	0	2	0	17
	I	2	4	1	19	0	3	0	29
	0	4	7	2	37	2	2	0	54
Total...		9	13	4	65	2	7	0	100
Com- bined	III	9	8	4	0	12	7	5	47
	II	13	17	19	13	12	17	8	96
	I	12	28	24	25	21	17	8	132
	0	11	25	37	77	29	31	7	224
Total...		45	78	84	115	74	72	18	499

*Note 7:—In this case K's arrangement relative to the vividness of the imaginal reaction was, through some mistake, made wholly on the basis of the kinaesthetic factor.

of the fragments in an order of pleasantness as described in the next section, be inspected, it will be seen that only three of the twenty are fragments of which the visual translation is unimportant, as shown by a summary of the kind and number of images reported for each fragment. These three fragments are 11, 56, and 20. 11 is chosen because of its verbal beauty or its charming auditory imagery. 56 causes a pleasant kinaesthetic relaxation and is pleasing verbally. 20 brings a delightful organic reaction. Of the other seventeen fragments (105, 70, 82, 46, 74, 2, 3, 92, 8, 89, 67, 98, 79, 97, 16, 53, 113) all give a visual reaction but this visual reaction is particularly essential for the pictorial fragments, 70, 82, 74, 67, and 3. 92, a highly pleasant fragment, gives no reaction other than the visual. Very rich imagery, of many sorts, is recorded for 46, 74, 2, 8, 89, 98, 16, 53, 113.

Strangely enough, the fragments that a summary of images shows to be particularly effective in the arousal of auditory images (87, 33, 11, 16, 19, 86) are represented in the most pleasant group by only 16 and 11.

The olfactory fragments are represented by 46, 8, 113, 16, 53. In fact, of the fragments that succeeded in arousing olfactory imagery to any degree, only 47, 78, and 109 (unpleasant) fail to appear in this group. Such a result evidences the degree to which olfactory imagery contributes to the affective reaction.

The strongly cutaneous fragments are represented by 74, 2, 98, 53, and 8; the kinaesthetic fragments by 2, 98, and 74; the organic by 113, 20, and 98.

In general, one is surprised at the excess of olfactory, cutaneous, and visual fragments over the auditory and kinaesthetic.

An inspection of the twenty fragments that are most unpleasant shows less frequency of visual imagery. The number of visual images per fragment is noticeably less than in the pleasant group. Fragments 29, 45, and 47 show, however, a visual reaction for every reagent. The most effective auditory fragments are not represented in this group but, among its fragments, 4, 36, 28, 45, 60, and 24 give considerable auditory reaction. The olfactory and gustatory fragments are represented by 109 and 108. The organic and pain fragments by 65, 25, 13, 62, and 36; the cutaneous fragments by 13, 36, 45, 29, and 96; the kinaesthetic fragments by 29 and 93. Fragments 29, 45, 36, and 96 are rich in imagery. Apparently, the most important factor in determining the unpleasant reaction is the organic reaction.

The influence of the so-called lower senses upon the affective reaction is evident in both the pleasant and the unpleasant group.

Miss Martin (10:23) recognizing the frequent discrepancy between the judgment of pleasantness-unpleasantness and that based on imagery-vividness, procured an introspective report from the reagent, in the case of such discrepancy, of the motive that led to the affective judgment. The same precaution was taken in the present investigation. The factors, other than imagery, that determine this judgment may be discussed under the following heads: (1) The influence of the inner speech; (2) The influence of the emotional tone; (3) The influence of the logical aspect; (4) The influence of familiarity or novelty.

(1) Poetry, unlike the other arts, appeals to the imagination only through the mediation of an imaginal or semi-imaginal element,—that of the inner speech. Thus a double train of imagery, the verbal and the concrete, may be experienced for every fragment. The affective and the aesthetic judgment may then be determined partly by the concrete imagery aroused, partly by the sensuous content of the inner speech. Unfortunately, no specific tests were made to determine the influence of the verbal content upon the affective judgment, but subjects frequently commented upon this aspect of a fragment as that of most significance. Sometimes, indeed, a conflict was noticed between the two aspects of the fragment. Verbally, the fragment might be classed as +3; while on the concrete side it was distinctly unpleasant. I, who frequently remarked the rhythm and word-melody of the fragments, reported that his basis of judgment often shifted from the concrete imagery or meaning side to that of verbal charm. J, on the other hand, was often annoyed by too emphatic rhyme or rhythm, a detail which sometimes lowered the pleasure of the concrete imagery. Of the first group of subjects, B, D, C, and F were sensitive to the nuances of the inner speech.

(2) The emotional tone of a particular fragment was also influential in determining the affective judgment. Mueller-Freienfels has urged, indeed, that one of the chief individual differences shown in art creation and appreciation is to be found in the kind of emotion whose expression is desired. In general, the degree to which, at a particular epoch, the unpleasant is admitted as artistic; the degree to which the "luxury of woe" is enjoyed, limits the extent to which naturalism, in contrast to idealism, may be developed.

Individual preferences relative to the emotional tone of a fragment were very evident in the present test. D manifested the greatest liking for melancholy fragments. She found the expression of sad emotions very

pleasing. Her greatest variation from the average of the group as a whole is found in the case of judgments on such fragments as 5, 31, 34, 28, 65, and 29. Many of these preferences, as for 5, 31, 34, and 28, are shared by I. Otherwise, the group found the emotional tone of such fragments highly unpleasant.

Painful and sad suggestions were particularly distasteful to A, L, and K. L reported that stirring poetry was enjoyed when she felt in "fit" condition; when fatigued, she preferred restful, reposeful lines.

(3) The affective judgment was also influenced by the logical reaction to a fragment. Again and again, a fragment that lacked meaning or one whose meaning was not at once evident was, for that reason, classed as unpleasant. M laid the greatest stress upon what he called "logical incongruity". Some of the most imaginative figures were displeasing to him because of their verbal incongruity. A also showed impatience with the fantastic.

The general dissatisfaction of the group as a whole with the strikingly synaesthetic passages may be mentioned in this connection. Fragment 54, from Swinburne, "Light heard as music, music seen as light", repeatedly brought the comment, "I can't see music nor hear light."

Again, a confusion of sense-qualities as in 72 and 96 was found unpleasant.

(4) The influence of familiarity and novelty upon the affective judgment has already been shown in the degree to which the pleasantness of the fragments waned with rereading. Again, according to Mueller-Freienfels, the demand for the new or the old in art-expression is a significant individual difference. Those who demand novelty are interested in the content-side; those who demand the familiar are interested in form. From the present test, one may not draw general conclusions as to the individual differences in this respect. L and I showed, however, an interest in repetition that was lacking for J and M.

2. THE VARIABILITY OF THE AFFECTIVE JUDGMENT.

A series of three arrangements into eight groups of the one hundred fragments (fifty at a session), on the basis of their pleasantness-unpleasantness, was made, as described above, by the Chicago subjects with a week-interval between the arrangements. Table XIII of the preceding section shows how greatly the series as a whole waned in value with repetition of the judgment. There is a decrease in the number of fragments marked very or moderately pleasant, and an increase in the number of indifferent fragments, and in those slightly pleasant or unpleasant. This waning in the degree of positive affective value is marked for M, K, and J. L shows exceedingly little loss of affective value in the case of the pleasant fragments, but there is a slight tendency for the unpleasant fragments to become less unpleasant on rereading. With repetition, there is a slight increase in pleasantness for I. These conclusions drawn from the table are of interest in connection with observations made at the time of the experiment. M and J, and K to a less degree, found the repetition of the test irksome and monotonous; L and I found such repetition pleasant.

In order to compare these results with those obtained from the Wyoming group, four of the latter reagents (A, C, D, and E), with N (Professor of English Literature) as a fifth reagent, made in all three arrangements of the one hundred fragments into the groups named above, namely, +3, +2, etc. In the case of these subjects, however, several weeks elapsed between the first and second arrangement and several months between the second and third arrangement, except in the case of N, who made the arrangements at two-weeks intervals. Table XIV summarizes the number of fragments placed by each reagent in each group for each of the three trials. There is

some slight evidence of waning value for the series as a whole, particularly evident in a comparison of the second with the first arrangement. The waning, however, is by no means so pronounced as for the other group of subjects. Individual differences are also less noticeable. No doubt the short time-interval in the case of the Chicago group accounts in part for the greater waning, but only in part.

A survey of the tables shows also that the series as a whole on the first as well as on the second and third reading, resulted in a much smaller number of "very pleasant" judgments from the Chicago than from the Wyoming group. I is the only member of the Chicago group whose judgments of "very pleasant" approached in number those of several of the Wyoming group. This fact is probably explained by I's great love of poetry. Of the Wyoming group, D, C, and N were very fond of poetry. This interest in the material apparently operated in maintaining the affective value, as is shown particularly in the case of I, whose reports show no evidence of a waning in value of the series, even with a short interval between arrangements.

TABLE XIV.
NUMBER OF FRAGMENTS IN EACH GROUP. WYOMING REAGENTS.

Reagent	Arrangement	+3	+2	+1	0	?	-1	-2	-3	Total
A	First.....	24	11	11	22	1	14	6	11	100
	Second.....	21	14	10	21	1	13	11	9	100
	Thrd.....	15	16	11	14	6	12	11	15	100
C	First.....	28	12	30	6	2	1	13	8	100
	Second.....	25	10	8	27	9	12	5	4	100
	Thrd.....	37	13	5	7	16	11	6	5	100
D	First.....	35	28	17	7	6	5	1	1	100
	Second.....	30	35	12	4	7	6	1	5	100
	Thrd.....	25	27	21	7	7	9	8	1	100
E	First.....	16	26	13	8	9	8	8	12	100
	Second.....	14	17	16	8	10	19	9	7	100
	Thrd.....	12	22	18	2	16	15	7	8	100
N	First.....	30	14	4	6	30	8	5	3	100
	Second.....	30	10	3	2	40	3	6	6	100
	Thrd.....	32	8	1	6	38	8	9	3	100
Combined	First.....	133	91	75	49	48	36	33	35	500
	Second.....	120	86	49	62	67	53	32	31	500
	Thrd.....	121	81	56	36	33	55	36	32	500

In order to determine the relative affective value of the different fragments, the variation of each subject from the average of the group, and his variability from his own standard, the arrangement of the fragments under the heads +3, +2, +1, 0, ?, -1, -2, -3 was treated as equivalent to an arrangement into eight groups, 1 (+3) representing the highest degree of pleasantness and grading down through 4 (0), indifference, to 8 (-3), a high degree of unpleasantness. The grouping under the rubrics given as +3, +2, and so on, produced a definite shading of the judgment both to and from a point of indifference. Such a shading probably occurs in most arrangements of stimuli on the basis of affective tone (7:142), so that its explicit assumption in the present series may be of value in throwing light upon the characteristics of a series where the change from positive preference to positive dislike is shaded in both directions towards a neutral point. The significance of the ? judgments in this connection is doubtful. Only two subjects, J and N, made extensive use of it as a sort of catch-all for their critical reaction to details. The other reagents appeared to use the ? judgment as indeed a transitional form between indifference and positive unpleasantness. This statement is supported by the fact that with the waning of affective value, there is for a number of reagents an increase not

only in the o judgments, but also in the ? judgments. In any case, however, one needs to hold in mind the ? judgment as a possible objection to using the series as a whole as a strictly shaded arrangement.

In determining for the first arrangement the affective value of each fragment by calculating the final position assigned it as indicated by the average position and the mean variation of the arrangements of the ten reagents, the only uncertainty lies in the use of the ? judgment as equivalent to the fifth position. In the repeated arrangements, the variation in the time elapsing between the consecutive arrangements for different subjects, particularly in the case of the three subjects for whom the series waned greatly in value, introduces another uncertainty in estimating the results. With these limitations in mind, we may consider Table XV, which gives the average position, the mean variation, and the final position of each of the one hundred fragments for each of the three trials.

The first point of interest is found in the fact that the average mean variation in the first arrangement is 1.45. Hollingsworth (7:143) has called attention to the fact that in an arrangement on the subjective basis, the MV

— (where $P = \frac{\text{the number of possible positions}}{P}$) is "with various kinds of material, with different groups of observers and with a widely ranging value for P, usually .20, and this with high reliability." In the present test, the MV

— is 1.81, a value which does not depart widely from that given by Hollingsworth. It may, then, be concluded that the use of the ? judgment as equivalent to 5 has not introduced great error in the calculation.

With the repetition of the arrangements, the M. V. fell to 1.29 in the second arrangement and to 1.33 in the third arrangement, or $\frac{MV}{P}$ was re-

TABLE XV.

Number	First Trial			Second Trial			Third Trial		
	Average	M. V.	Position	Average	M. V.	Position	Average	M. V.	Position
2	1.9	.72	6	1.7	.7	2	1.9	.72	4
3	2	.6	7	1.7	.84	3	2.4	1.04	18
4	5.7	1.16	98	5.8	1.08	97	5.7	1.08	94
5	4.7	2.1	79	5.1	1.7	86	5	2	83
6	3.3	.9	42	3.7	1.16	44	3.1	1.14	38
7	2.8	1	27	2.7	.9	27	3.5	1.70	43
8	2	1	10	2.5	1.1	23	2.2	1.04	10
9	4.2	1.04	69	4.3	1.31	68	4.5	1.2	67
10	4.3	1.9	78	3.4	1.4	41	3.6	.92	44
11	2	.8	8	1.7	.56	1	1.8	.48	2
12	4.3	1.24	73	4	1.4	57	4.2	1.16	59
13	6.2	1.04	98	6.05	1.35	98	6.1	1.32	97
14	2.9	1.32	31	2.5	.6	20	2.8	1.4	25
15	4.3	1.16	72	4	1.2	55	4.1	1.3	58
16	2.4	1.36	17	2.9	1.5	31	2.7	1.5	22
17	4.1	1.9	67	3.7	1.5	46	4.3	1.3	61
18	4.1	1.14	64	3.9	1.12	52	4.3	1.08	60
19	2.6	1.24	21	3	1.2	32	3.1	1.54	35
20	2.5	1.0	19	2.3	.82	15	2.3	.76	15
22	2.6	1.52	22	2.5	1	22	2.4	.68	17
23	4.1	1.32	65	4.1	1.12	60	4.3	1.5	62
24	4.9	2.12	83	4.2	1.24	65	4.3	1.56	68
25	5.2	1.76	86	4.6	1.4	74	5.2	1.24	88
26	2.7	1.64	26	1.9	.9	10	2.1	.92	8
27	3.7	1.24	53	2.4	1.48	19	3	1.2	31
28	5.5	2.1	80	4.8	1.68	78	4.6	1.56	71
29	4.9	2.5	82	5.5	1.9	93	5.4	2.32	91
30	2.7	1.16	24	3.7	.88	43	3.6	1.28	46

TABLE XV—Continued.

Number	First Trial			Second Trial			Third Trial		
	Average	M. V.	Position	Average	M. V.	Position	Average	M. V.	Position
31	3.7	2.44	54	3.8	1.84	51	3.7	1.02	51
32	4.1	2.06	68	4.1	1.12	61	3	1	29
33	3.4	2.06	47	3.8	1.8	50	3	1.6	32
34	3.9	2.06	60	3.8	1.96	39	3.7	1.76	52
36	5.6	1.88	91	5.2	2	89	5	2.2	86
37	3.3	1.42	40	4.1	1.7	63	4	2.2	56
38	3.5	1.8	49	3.3	1.36	38	3.5	1	40
39	3.8	1.24	56	4.5	.8	72	3.9	.76	55
40	4	1.8	63	4.9	1.72	81	4.6	2	73
41	3.2	1	35	3.4	1.32	40	3.5	1	41
42	4.2	1.96	71	3.7	1.7	47	4.3	1.9	64
43	6.7	1.42	99	6.5	.8	99	6.4	1.32	99
44	5.9	1.72	95	5.1	1.88	87	5.2	2	89
45	5.4	1.84	88	4.9	1.92	82	5	2	84
46	1.8	.96	4	1.8	.8	5	1.8	.8	3
47	6.2	.88	97	5.4	1.28	90	5.5	1	92
48	5.7	1.44	94	4.7	1.24	75	5	1.2	80
49	3.3	2.22	43	2.2	1.24	14	2.2	1.24	12
50	3.6	1.88	51	3.9	1.14	53	3.6	1.4	47
51	4.8	1.48	80	4.5	1.2	73	4.7	1.5	75
52	2.9	1.28	30	2.5	1.2	24	3.1	1.56	34
53	2.4	1.76	18	1.8	.96	8	2.2	1.08	11
54	3.6	1.08	50	3.8	1.28	49	3.7	1.16	49
55	3.4	2.06	48	2.9	1.48	30	2.7	1.88	21
56	2.3	.96	14	2.7	.9	26	2.5	.9	19
57	3.3	1.22	39	4.9	1.32	80	4.6	1.68	72
58	4	1	62	4.4	1.12	71	4.9	1.12	79
59	3.9	2.5	61	3.9	1.72	54	3.3	1.9	38
60	5.2	1.6	84	5.3	1.16	89	5.5	1.2	98
61	3.6	1.92	82	3.8	1.04	48	3.3	1.56	37
62	5.6	1.36	90	5.8	1.06	96	6	1	96
63	4.3	1.36	74	4.8	1.2	77	4.8	1.4	78
64	3.8	1.6	58	3.2	1.44	35	3.3	.76	36
65	5.6	1.96	92	5	2.4	84	5.06	1.75	86
66	4.9	1.62	81	5.5	1.6	92	5	1.4	81
67	2.2	1.08	12	1.8	.8	6	1.7	.84	1
68	3.2	1.44	37	4.3	1.1	66	4.6	.8	69
69	3.9	1.34	59	3.7	1.16	45	4.7	1.16	74
70	1.6	.72	2	1.8	.96	7	2.3	1.36	16
71	2.7	1.56	25	1.9	.72	9	2	1.2	7
72	3.4	1.2	44	4.7	1.56	76	3.6	1.2	45
73	4.3	1.84	75	4.9	1.14	79	4.4	1.24	65
74	1.8	.96	5	2.3	1.42	16	2.8	1.4	24
75	2.8	1.04	23	3.5	1.3	42	3.4	1.2	39
77	4.1	1.72	66	4.3	1.1	67	4.7	1.56	76
78	3.1	1.72	34	3.2	1.88	36	2.9	1.46	27
79	2.3	1.16	15	2.1	.94	11	1.9	.9	6
81	3.1	1.54	33	4	1.4	56	4.8	1.08	77
82	1.7	.84	3	2.2	1.24	13	2.1	1.16	9
83	3.2	1.04	36	3.1	1.06	34	3	1.2	30
84	2.7	1.1	23	2.65	.76	25	3.8	1.4	54
85	3	1.6	32	4.1	.74	59	3.8	1.04	53
86	3.2	1.64	38	4	1.6	58	3.7	1.8	50
87	4.5	1.9	76	5.6	2.08	95	5	1.8	82
89	2	1	11	2.1	.96	12	2.8	1.76	26
91	3.8	1.56	57	4.3	1.90	69	5.1	1.82	87
92	2	.8	9	2.9	1.12	29	1.9	.72	5
93	5.4	1.44	37	5.1	.36	85	4.6	1.16	70
94	3.7	1.76	65	2.8	1.6	28	2.9	1.08	28
95	4.2	1.64	70	4.3	2.1	70	4.5	1.8	68
96	5.2	1.84	85	5.6	1.28	94	6.7	1.16	100
97	2.3	1.22	16	2.5	.9	21	2.8	1.2	22
98	2.2	1.52	13	4.1	2.1	64	3.6	1.8	48
99	3.4	1.6	46	4.1	1.5	62	4.4	1.44	66
100	3.3	1.5	41	3.3	1.1	37	3.5	1.6	42
104	4.5	2.4	77	5	2	83	5.3	2.1	90
105	1.6	.48	1	1.8	.46	4	2.3	.76	14
107	2.3	1.76	29	2.3	1.42	17	2.5	1.3	20
108	7.3	.7	100	7	1.2	100	6.2	1.2	96
109	6.1	1.3	96	5.5	1.1	91	6	1.2	96
111	3.4	1.3	45	3	1.4	33	4	1.4	57
113	2.5	1.4	20	2.4	1.28	18	2.2	1.24	13
		1.45			1.29			1.33	

161, 166
spectively 1.61 and 1.66. Such a lowering of the value of the mean variation, noticeable particularly in the second arrangement, is undoubtedly due to the waning of the positive affective tone of the series as a whole, a waning which in the method used resulted in a shifting of the fragments towards

the fourth and fifth positions, equivalent in its effect to reducing the number of possible positions. Such a reduction in the value of the M. V. might indeed be expected in the group-method of arrangement where a transition from positive pleasure to positive unpleasantness occurs through an indifference point. In the case of waning value evident by a general reduction along a scale in one direction only such a lowering of the M. V. might not occur.

In this connection, it is interesting to compare the average mean variation of the ten fragments that in the final order of pleasantness-unpleasantness were found to be most pleasant with those that were found to be most unpleasant. Table XVI shows that the M. V. of the most pleasant group is lower than that of the most unpleasant group. The same statement is true if the first twenty fragments in the table be compared with the last twenty. Hollingsworth (7:141), in commenting on the lower M. V. at the top of a series as compared with the M. V. at the bottom, cites it as a usual occurrence in subjective judgments and interprets it as evidence, possibly, for the fact that "a group of individuals will resemble each other more in their preferences than in their aversions." This seems, indeed, the most probable inter-

TABLE XVI.
AVERAGE M. V.'s, 10 SUBJECTS.

Position	Trial 1	Trial 2	Trial 3
1.....	.48	.56	.84
2.....	.72	.70	.48
3.....	.84	.84	.80
4.....	.96	.48	.72
5.....	.96	.80	.72
6.....	.72	.80	.90
7.....	.60	.96	1.20
8.....	.80	.96	1.16
9.....	.80	.72	.92
10.....	1.00	.90	1.04
91.....	1.88	1.10	2.32
92.....	1.96	1.60	1.00
93.....	1.16	1.90	1.20
94.....	1.44	1.28	1.08
95.....	1.72	2.08	1.00
96.....	1.80	1.08	1.20
97.....	.88	1.08	1.32
98.....	1.04	1.85	1.20
99.....	1.42	.80	1.32
100.....	.70	1.20	1.16

pretation in the present instance, although every reagent but one gave, also, a lower M. V. in the upper than in the lower range, an observation that might incline one to think that the objective differences in the upper range were greater than those in the lower.

The difference between the M. V. of the first and last ten fragments became smaller for the second and third trials, falling from .56 in the first arrangement to .48 in the second and to .50 in the third arrangement. Or, taking the first and last twenty fragments, the difference fell from .55 in the first arrangement to .48 in the second, but rose to .61 in the third. This fall in consecutive trials in the difference between the M. V.'s at the top and bottom of a series, Hollingsworth finds difficulty in explaining. In the present test the progressive fall was much less than he found to be true in judgments on comic situations and seems to be due to the fact that the very and moderately unpleasant fragments waned in value to a greater degree than did the very or moderately pleasant fragments. That is to say, unpleasant fragments with repetition became neutral while pleasant fragments did not lose their affective tone to the same extent. Table XIII shows, indeed, that, proportionally, a greater number of unpleasant fragments waned in value with repetition than did pleasant fragments.

On account of discrepancies in the method, no further manipulation of results, except along the line of individual variation, will be attempted. It is evident, however, that the order of merit method offers great opportunity for the study of the affective and the aesthetic judgment.

The variability of each individual from his own average for the three trials was calculated and the reagents arranged in order of individual consistency as follows: (1) D, .43; (2) L, .47; (3) J, .49; (4) M, .59; (5) N, .64; (6) I, .64; (7) A, .71; (8) C, .79; (9) E, .86; (10) K, .99. The average M. V. of the first twenty and last twenty fragments reveals, however, certain individual characteristics. D and N, with high consistency for the pleasant fragments, show great variability in judgment on the unpleasant fragments. I, also, is much more consistent in judgment on the pleasant fragments. M's variability on the unpleasant fragments is very high, while for J, L, and A it is relatively lower than in the case of the other subjects. J alone of the subjects showed an absolutely greater consistency on the unpleasant than on the pleasant judgments.

The average variability of each reagent from the average of the ten reagents for the three trials resulted in the following order: (1) L, 1.07; (2) J, 1.09; (3) M, 1.09; (4) N, 1.29; (5) C, 1.31; (6) E, 1.38; (7) I, 1.42; (8) A, 1.49; (9) D, 1.60; (10) K, 1.80. Or, calculated on the basis of the first trial alone, in which the "waning" effects are not present, (1) J, 1.05; (2) M, 1.24; (3) L, 1.26; (4) N, 1.26; (5) A, 1.4; (6) C, 1.44; (7) I, 1.54; (8) D, 1.58; (9) E, 1.63; (10) K, 2.06.

Relative to the variability of the judgment upon different poets, a calculation on the basis of the first arrangement shows that the judgments on the Blake fragments were most constant for the group, with a slightly higher variability on the Shelley fragments. The greatest variability was found for the Keats fragments, with the Swinburne fragments next in order. If the variability of the individual from his own average be taken and the average of the group calculated, the Shelley fragments give the lowest average, with the Blake fragments closely approximating this average. Swinburne gives the highest variation, with Keats a few points lower. Thus, the group as a whole are seen to agree best on the Blake and Shelley fragments and to disagree most on the Swinburne and Keats fragments, while the individual reagents are most constant in their judgments on Shelley and Blake and least constant in their judgments on Keats and Swinburne.

3. THE AESTHETIC AND THE AFFECTIVE JUDGMENT.

Miss Martin, it would seem, considered that the arrangement of pictures on the basis of their pleasantness-unpleasantness determined also their aesthetic value. Consideration whether or not such a conclusion is justified raises the question of the relation of the agreeable to the aesthetic experience.

A theoretical discussion of the point has no place here. But as a practical consideration, it seemed worth while comparing an arrangement of the fragments on the aesthetic basis with one made on the basis of their pleasantness-unpleasantness. The writer had hoped to get this second arrangement, after a sufficiently long time interval, from each of the ten reagents who had served as subjects in the preceding test. It happened, however, that judgments could be obtained from only six of them. These reagents, A, C, D, N, I, and L, were instructed to classify the fragments into eight groups on the basis of their aesthetic value, the highest aesthetic value being designated by 1, the lowest by 8. A statement of what in his opinion constituted the aesthetic value was also asked from each reagent. The order of aesthetic value of the fragments was then determined by calculating the average position and mean variation on each fragment. In order to compare this grouping with one made on the pleasantness-unpleasantness basis, the

affective judgments of these six reagents (first trial) were averaged and the final position and mean variation of each fragment determined.

The instructions for the aesthetic arrangement were purposely made general in order to determine whether or not the aesthetic distinction is a clear-cut one for subjects who have had no training in theoretical aesthetics.

A shift in the subject's attitude from that evident in making the affective judgment was clearly manifest. In general, the aesthetic judgment was given much more slowly than the affective, partly because the reagents felt at a loss in formulating a basis for this judgment. Usually, a critical attitude was adopted, an objection which Bullough (4) has with reason urged against the use in experimental aesthetics of methods involving comparison. The word aesthetic was often interpreted as equivalent to artistic. The artistic fragments, in turn, were held to be those that exhibit literary skill. For instance, in giving the affective judgment, several reagents had commented on fragment 108 to the effect that although the sensuous reaction to it was strikingly disagreeable, the appropriateness of its phrasing was extraordinary. This introduction of the critical attitude, with, however, as will appear, little objective basis for estimation, might have been avoided by asking for an arrangement of the fragments on a basis of their beauty, an arrangement which should indeed be tried.

The presence of the critical attitude is shown by the smaller number of fragments judged to be of the highest aesthetic value in comparison with the number judged to be very pleasant. There are only 117 fragments in the combined table for the six subjects judged to be of highest aesthetic worth; there are 155 fragments grouped under the head of very pleasant. Every subject, except C, gave an excess of very pleasant over very aesthetic fragments. The number of moderately pleasant and slightly pleasant fragments corresponded closely with those placed in the second and third aesthetic groups. The aesthetic fragments in the eighth group exceeded in number those in the very unpleasant group, there being 54 of the lowest aesthetic value and only 28 very unpleasant fragments. This observation points in the same direction as the excess of very pleasant judgments, to the presence, namely, of a critical attitude in making the aesthetic arrangement.

Comparing the results for the two arrangements as shown by a tabulation of the average position, the final position, and the mean variation for affective series is from 1.33 (M. V., .44) to 7.17 (M. V., .83). The average

MV .165

mean variation was 1.32 The ——— was 1.65. The range of positions in
P

the aesthetic series was from 1.67 (M. V., .67) to 6.5 (M. V., .2), with an

MV

average M. V. of 1.57 or ——— was .196. A comparison of these figures
P

shows that the affective judgment was less subjective than the aesthetic in the sense that the arrangement on the affective basis afforded a much more definite point of departure, one that was common to the subjects.

In both cases the M. V. for the superior group is lower than that for the inferior group, that is, the subjects agree better on the fragments that are pleasant and aesthetic than on those that are unpleasant and not aesthetic. This difference between the M. V.'s at the top and at the bottom of the series is, however, greater in the case of the affective than in the case of the aesthetic series. The average M. V. of the first twenty of the affective series is .66; of the last twenty 1.57; the difference is .91. The average M. V. of the first twenty fragments in the aesthetic series is 1.07; the M. V. of each fragment of the two series, we find that the range of positions in the

the last twenty is 1.79; the difference is .72. Comparatively, the M. V. of the superior aesthetic fragments is greater than that of the inferior aesthetic fragments.

A detailed comparison of the fragments which occupy the first and last twenty position on each scale is of interest. The following fragments maintain their position among the first twenty of each group: 26, 38, 82, 2, 11, 53, 89, 105, 67, 92, 71. Fragments that are high on the aesthetic scale but low on the affective are 98, which is first on the aesthetic rating but only twenty-first on the affective; 95, which falls from fourth position in aesthetic to seventy-sixth in the affective series; 29, which is eighth in the aesthetic scale, sixty-seventh in the affective; 34, which is eleventh on the aesthetic, fifty-second on the affective rating; 36, which falls from twelve in the aesthetic to ninety-six on the affective scale. 6, 49, and 33 also show a fall in the change from the aesthetic to the affective position, but a fall less pronounced than in the preceding cases. A study of these fragments that are not as pleasant to the group as a whole as they are aesthetic shows that 98, 29, 34, 36, and, perhaps, 95 would be classed as mood-fragments. They are fragments whose sentiment is tinged with melancholy.

The fragments that ranked much lower on the aesthetic than on the affective scale are 8, which falls from first place affectively to forty-ninth aesthetically; 113, which is lowered from twelfth place on the affective scale to forty-seventh on the aesthetic; 70, which is reduced from thirteenth place to fifty-sixth; 52, which falls from twenty-sixth position to the forty-first; 19, which is reduced from the seventeenth position to the fifty-second; and 3, which falls from the ninth to the thirty-fifth position. Other fragments that ranked higher on the affective than on the aesthetic scale are 74, 56, and 16. A study of these fragments shows that they possess a rich sensuous content which is pleasant rather than beautiful.

The fragments which are held to be both unpleasant and of little aesthetic worth are 43, 13, 51, 62, 4, 63, 109, and 96. These fragments have a painful sensuous content largely due to their organic toning, which is at once unpleasant and not aesthetic. The fragments which are held to be non-aesthetic but not strongly unpleasant are 40, which occupies the last position in the aesthetic rating but only the sixty-seventh in the affective; 72, which is the ninety-ninth fragment for aesthetic value but the fifty-ninth for affective; 61, which shifts from ninety-seventh, aesthetic, to thirty-ninth, affective; 84, which is ninety-first on the aesthetic scale and forty-third on the affective; 111, which is raised from a position of ninety on the aesthetic rating to sixty-five on the affective; 9, which is raised from the eighty-eighth to the sixty-second; 41, raised from eighty-sixth to forty-ninth position; and 77, raised to sixty-third from eighty-third position. A study of these fragments shows that verbal or logical incongruity is able to lower the aesthetic worth more than it affects the quality of pleasantness.

Very unpleasant fragments which have a higher aesthetic valuation are 108, which although the most unpleasant fragment is only sixty-second in the aesthetic ranking, a fragment which the reagents frequently cited as marking the difference between an aesthetic and a pleasant fragment; 47, the ninety-ninth on the affective, the sixty-seventh on the aesthetic scale; 44, raised from ninety-sixth on the affective to sixty-first on the aesthetic scale; 36, raised from ninety-fourth, affective, to twelve, aesthetic; 28, raised from eighty-eight, affective, to thirty, aesthetic; 65, raised from ninetieth, affective, to forty-ninth, aesthetic. The increased aesthetic value for such unpleasant fragments as 25, 48, 25, 59, and 87 is also evident. These fragments, which are usually sensuously unpleasant, are given a higher aesthetic rating because of the aptness of expression, the kinship between the sentiment and the phrasing.

The results suggest a method of instituting a comparison between judgments on various qualities of poetry. It is quite evident that although the very pleasant fragment may be aesthetic, or the aesthetic pleasant, there is no necessary relation of the sort.

One of the greatest individual differences in the reaction was apparently the degree to which the aesthetic reaction determined the judgment of pleasantness. This determination is very evident in the judgments of D, who reported that a fragment possessing the aesthetic quality was always pleasant, although there might be a few very pleasant fragments which were not aesthetic. As a matter of fact the fragments in which D's affective judgment varied most widely from the group-average are those fragments that the group finds unpleasant but which on the aesthetic basis are given higher value, namely such mood fragments as 34, 29, 28, and 98. One would expect to find D's variation from the group average less for the aesthetic judgment than it is for the affective, and such is found to be the case. Her average M. V. from the average affective judgment of the group is 1.36; her average M. V. from the average aesthetic judgment of the group is 1.32.

As regards the basis for the aesthetic judgment, D reported that she appeared to use the word "aesthetic" in a double sense. "(1) I understand by an aesthetic fragment one that arouses the mystic feeling of beauty, such as fragments 28, 37, and, to a high degree, fragments 98, 34, and 94. These fragments are the ones that I mark 1 on the aesthetic scale.

"It is very difficult to define what I mean by the 'mystic feeling of beauty'. There is a definite suspension of the critical judgment, together with a feeling of complete self-absorption accompanied either by the trance feeling (diverged eyes) or that of suspended breathing. There is also an illusion of a long lapse of time, during the reading. Apparently, the mood-tone of the fragment and the music of the words are more influential in producing this effect of beauty than is the sensuous content or imagery aroused. In connection with several fragments, however, the visual images aroused are of great beauty and increase the effect of the words themselves. Such images are those aroused by 94, 34, and 95.

"(2) I also apply the word aesthetic to those fragments that, intellectually, I judge to be artistic, to exhibit literary taste. These fragments are graded down from the first column, that of highest aesthetic value. I believe that these fragments are much more apt to 'wane' for me in their affective aspect than are the fragments of highest aesthetic value."

N, with a different attitude than D, who found the aesthetic pleasant, reported that she found difficulty in finding the disagreeable aesthetic. Her standard for the fragments of highest aesthetic value is what she calls the possession of a spiritual or ethereal quality. One word was found sufficient to give such a tone, such words as wingéd, soul, spirit, being particularly effective. N's mean variation from the affective average is much less than that from the aesthetic average, being only 1.15 in the latter case, but 1.81 in the former, an observation which points the subjective standard in her aesthetic grouping.

A and L were able to cite no new basis for the aesthetic judgment other than that utilized in the affective grouping. For both the sensuous content is of chief importance in both series. A adds that, for some reason, the "windy" fragments are felt to be particularly aesthetic. For both of these subjects the mean variation from the average judgment is higher in the case of the aesthetic than in the case of the affective series. For A, the M. V. in the affective series is 1.30, for the aesthetic, 1.67; for L, the M. V., affective series, is 1.23, for the aesthetic, 1.36.

The critical attitude would appear to be very pronounced for I, in passing the aesthetic judgment. I found no fragment very unpleasant, but found twenty-five of them of the lowest aesthetic worth. C, on the contrary, placed only one fragment in the lowest aesthetic group, although he had found eight fragments very unpleasant. Both these subjects, however, gave a lower M. V. for the affective series than for the aesthetic. For I, the M. V., affective series, is 1.43; the M. V., aesthetic series, is 1.86; for C, the M. V., affective series, is 1.31; the M. V., aesthetic series, 1.44.

I volunteered no statement of the basis for the aesthetic judgment. C reported that the basis for the judgment was two-fold: "(1) The 'absorptive' quality of the fragment; and (2) the skill shown in expression. There were fragments the reaction to which was unpleasant yet whose phrasing was felt to be very appropriate, an exact expression of the meaning intended." In case of such fragments as the latter, C had difficulty in deciding upon the proper placement. They included fragments 13, 25, 45, 34.

The six subjects of the present group, if ranked in order of least variation from the group-average for the affective series, would be placed as follows: (1) N; (2) L; (3) A; (4) C; (5) I; (6) D. A ranking on the basis of the M. V. for the aesthetic series gives (1) D; (2) L; (3) C; (4) A; (5) N; (6) I. D is the only reagent who gives a lower M. V. from the aesthetic than from the affective group-average, a lowering of the M. V. in the former case, which, although it appears slight, is very significant when taken in connection with the high average M. V. for the group as a whole. Moreover, D's M. V. in the aesthetic arrangement is much lower than the affective M. V. for every poet but Shelley, in which case the M. V. is much lower for the affective series, and thus reduces the average. This noticeably lower M. V. for Shelley in the affective arrangement as against the aesthetic is also true for the four other subjects. Poe and Swinburne show, on the other hand, a lower aesthetic than affective M. V. for three of the six subjects. Swinburne gives the lowest M. V. for the aesthetic arrangement of the five poets.

The comparison of the results from the two series of judgments suggests many interesting details. Irregularities in the experiment prohibit a further use of the figures. Certain indications are, however, significant and point the course of further investigation. It is, for instance, probable that the fragments of high aesthetic value are much less apt to wane affectively than are the pleasant but not aesthetic fragments. The tabulation of the averages for each of the three affective arrangements (ten reagents) shows that eight of the eleven fragments that were both very pleasant and very aesthetic either remained constant in affective value, as shown by a comparison of the average for the first and third trial, or else increased in value; three only (82, 105, and 89) fell slightly in affective value. Of the nine fragments that were aesthetic but not highly pleasant, six increased in affective value, three decreased slightly. On the other hand, of the nine pleasant but not highly aesthetic fragments, eight waned in affective value. Such indications are of interest since they suggest as characteristic of the aesthetic reaction the maintenance of the affective tone at a high level or the increase in this pleasantness with repetition, while the merely pleasant reaction wanes with repetition.

In this connection it is interesting to note that Strong in testing the effect of repetition upon the "pulling power" of advertisements, found some evidence of the waxing-value of "artistic" advertisements. (15:65).

IV. SUMMARY AND CONCLUSIONS.

1. Individual differences in the reaction to poetic fragments were clearly brought out by the test just reported. The kind of sense-reaction was less significant than the general characteristics of such reaction, as, for instance, its spontaneity, its imaginative or memorial qualities. The vague but charming images of the "diffuente" were in contrast to the precise images of the "plastique" type. In the case of the first, emotional coloration and kinaesthetic reactions were pronounced; in the case of the second, richness of imagery and definiteness of spatial relationships were emphasized. Felt kinaesthetic reactions appeared more intimate than optical-kinaesthetic reactions, just as a kinaesthetic self-projection appeared to hold greater aesthetic possibilities than a mere visual self-projection.

Absorption in the inner speech was shown to exist to various degrees,—the kind of absorption being determined by the predominance of visual, motor, or auditory elements. A motor predominance caused preoccupation with the rhythmic structure of the verse; an auditory favored absorption in the onomatopoetic effects, if the interest was sensorial, or issued in surrender to the dramatic possibilities of impersonation, if the imaginative interest was dominant.

2. The results of the experiment furnish some evidence of the possibility of utilizing the method of style in determination of an author's type-reactions.

3. Vividness of imagery, particularly of visual and olfactory imagery, was shown to contribute to the affective reaction to poetry. In general, the arousal of a predispositional form of imagery increased the pleasantness of the reaction. Apart from the imagery, individual differences in emotional preferences were significant in determining the affective reaction. The demands of logic and an heightened interest in the novel, on the one hand, or in the familiar, on the other, were also determinants of the judgment.

So many divergencies between the affective and the aesthetic judgment were shown to exist, that it is impossible, without further experiments, to apply to the aesthetic reaction the conclusions reached relative to the affective. In the case of the former, richness of imagery appeared to decrease in importance while mood-tone grew in value. Individual differences, however, in the degree to which the aesthetic was pleasant, were very evident. Apparently, the fragments affectively pleasant but not aesthetic waned in value with re-reading more than did fragments that were both aesthetic and pleasant.

In general, the results of the test show that application of the order of merit method to the problems of aesthetics offers a tempting field for work.

REFERENCES.

1. Angell, J. R. Methods for the Determination of Mental Imagery. Psychol. Rev. Monog. No. 53, (1910).
2. Betts, G. H. The Distribution and Functions of Mental Imagery. Columbia University Contributions to Education, No. 26, (1909).
3. Binet, A. L'Etude Expérimentale de L'Intelligence, (1903).
4. Bullough, E. The "Perceptive Problem" in the Aesthetic Appreciation of Single Colours, British Jour. of Psychol., Vol. II, (1906-1908).
5. Colvin, S. S. Methods of Determining Ideational Types, Psychol. Bulletin, VI, (1909).
6. Downey, J. E. A Case of Colored Gustation, American Jour. of Psychol., XXII, (1911).
7. Hollingsworth, H. L. Experimental Studies in Judgments (Judgments of the Comic), Psychol. Rev., XVIII, (1911).
8. Kakise, H. A Preliminary Experimental Study of the Conscious Concomitants of Understanding, American Jour. of Psychol., XXII, (1911).
9. Lay, W. Mental Imagery, Psychol. Rev. Monog., No. 7, (1898).
10. Martin, L. J. Ueber aesthetische Synaesthesie, Ztschft. für Psychol., 53, (1909).
11. Mueller-Freienfels, R. Individuelle Verschiedenheiten in der Kunst. Ztschft. für Psychol., 50, (1909).
12. Perky, C. W. An experimental study of Imagination, American Jour. of Psychol., XXI, (1910).
13. Ribot, Th. Essai sur L'Imagination Créatrice, (1900).
14. Souriau, P. La Suggestion Dans L'Art, (1909).
15. Strong, E. K. The Relative Merit of Advertisements, Archives of Psychology, 17, (1911).
16. Town, C. H. The Kinaesthetic Element in Endophasia and Auditory Hallucination, American Jour. of Psychol., XVII, (1906).

APPENDIX.

FRAGMENTS.

2. The sound of the rain
Which leaps down to the flower,
And dances again
In the rhythm of the shower—
The murmur that springs
From the growing of grass
Are the music of things. (Poe).
3. When the green woods laugh with the voice of joy,
And the dimpling stream runs laughing by;
When the air does laugh with our merry wit,
And the green hill laughs with the noise of it;
When the meadows laugh with lively green,
And the grasshopper laughs in the merry scene. (Blake).
4. I heard thy sighs,
And all thy moans flew o'er my roof but I have
called them down. (Blake).
5. Alas! that all we loved of him should be,
But for our grief, as if it had not been,
And grief itself be mortal! Woe is me! (Shelley).
6. On he flared
From stately nave to nave, from vault to vault,
Through bowers of fragrant and enwreathed light. (Keats).
7. And the song softened, even as heaven by night
Softens, from sunnier down to starrier light,
And with its moonbright breath
Blessed life for death's sake, and for life's sake death. (Swinburne).
8. The snow-drop, and then the violet,
Arose from the ground with the warm rain wet,
And their breath was mixed with fresh odor, sent
From the turf, like the voice and the instrument. (Shelley).
9. But the words she spake
Came, as through bubbling honey, for Love's sake. (Keats).
10. Lost in pleasure at her feet he sinks.
Touching with dazzled lips her starlight hand. (Keats).
11. And the mystic wind went by
Murmuring in melody. (Poe).
12. She
Only saw the beautiful lips and fingers
Full of songs and kisses and little whispers,
Full of music; only beheld among them
Soar, as a bird soars.
Newly fledged, her visible song, a marvel,
Made of perfect sound, exceeding passion,
Sweetly shapen, terrible, full of thunders,
Clothed with the wind's wings. (Swinburne).

13. Iron tears and groans of lead
Thou bind'st round my aching head. (Blake).
14. Banners yellow, glorious, golden,
On its roof did float and flow. (Poe).
15. Here where the dames of Rome their gilded hair
Waved to the wind, now wave the reed and thistle! (Poe).
16. Her voice came to me through the whispering woods,
And from the fountains, and the odors deep
Of flowers, which, like lips murmuring in their sleep
Of the sweet kisses which had lulled them there,
Breathed but of her to the enamoured air. (Shelley).
17. 'Tis scarce like sound, it tingled through the frame
As lightning tingles. (Shelley).
18. For to bear all naked truths,
And to envisage circumstance, all calm.
That is the top of sovereignty. (Keats).
19. The quiet maid
Held her in peace: so that a whispering blade
Of grass, a wailful gnat, a bee bustling
Down in the blue-bells, or a wren light rustling
Among seer leaves and twigs, might all be heard. (Keats).
20. And all the drops in all his veins were wine,
And all the pulses music. (Swinburne.)
22. Memory, hither come,
 And tune your merry notes;
And while upon the wind
 Your music floats,
I'll pore upon the stream
Where sighing lovers dream
And fish for fancies as they pass
Within the watery glass. (Blake).
23. Sweet moans, dovelike sighs,
Chase not slumber from thine eyes! (Blake).
24. All Nature speaks, and ev'n ideal things
Flap shadowy sounds from visionary wings. (Poe).
25. O, the heavy light!
How drowsily it weighed them into night! (Poe).
26. This is the mystic shell;
See the pale azure fading into silver,
Lining it with a soft yet glowing light;
Looks it not like lulled music sleeping there? (Shelley).
27. She met me, robed in such exceeding glory,
That I beheld her not. (Shelley).
28. Strange ministrant of undescribed sounds,
That come aswooning over hollow grounds,
And wither drearily on barren moors. (Keats).

29. Upon the sodden ground
His old right hand lay nerveless, listless, dead,
Unscathed; and his realmless eyes were closed;
While his bowed head seem'd list'ning to the Earth,
His ancient mother, for some comfort yet. (Keats).
30. O light of song, whose fire is perfect light! (Swinburne).
31. I have put my days and dreams out of mind,
Days that are over, dreams that are done.
Though we seek life through, we shall surely find
There is none of them clear to us now, not one. (Swinburne).
32. But clear are these things; the grass and the sand,
Where, sure as the eyes reach, ever at hand,
With lips wide open and face burnt blind,
The strong sea-daisies feast on the sun. (Swinburne).
33. He listened to the wind that now did stir
About the crisp'd oaks full drearily,
Yet with as sweet a softness as might be
Remembered from its velvet summer song. (Keats).
34. Resignedly beneath the sky
The melancholy waters lie.
So blend the turrets and shadows there
That all seem pendulous in air,
While from a proud tower in the town
Death looks gigantically down. (Poe).
36. And swordlike was the sound of the iron wind. (Swinburne).
37. Ah Sunflower, weary of time,
Who countest the steps of the sun;
Seeking after that sweet golden clime
Where the traveler's journey is done;
Where the Youth pined away with desire,
And the pale virgin shrouded in snow,
Arise from their graves and aspire
Where my Sunflower wishes to go. (Blake).
38. Thine old wild songs which in the air
Like homeless odours floated. (Shelley).
39. Nought loves another as itself,
Nor venerates another so,
Nor is it possible to thought
A greater than itself to know. (Blake).
40. And music from her respiration spread
Like light. (Shelley).
41. A multitude that rear'd their voices to the clouds. (Keats).
42. The pulse of war and passion of wonder,
The heavens that murmur, the sounds that shine,
The stars that sing and the leaves that thunder,
The music burning at heart like wine,
An arm'd archangel whose hands raise up
All senses mixed in the spirit's cup
Till flesh and spirit are molten in sunder
These things are over, and no more mine. (Swinburne).

43. And the hapless soldier's sigh
Runs in blood down palace-walls. (Blake).
44. And the red winds are withering in the sky. (Poe).
45. The curtain a funeral pall,
Comes down with the rush of a storm. (Poe).
46. And the hyacinth purple, and white, and blue,
Which flung from its bells a sweet peal anew
Of music so delicate, soft, and intense,
It was felt like an odour within the sense. (Shelley).
47. The leprous corpse touched by this spirit tender
Exhales itself in flowers of gentle breath;
Like incarnations of the stars, when splendour
Is changed to fragrance, they illumine death. (Shelley).
48. In each human heart terror survives
The ruin it has gorged; the loftiest fear
All that they would disdain to think were true;
Hypocrisy and custom make their minds
The fanes of many a worship now outworn. (Shelley).
49. A light of laughing flowers along the grass is spread. (Shelley).
50. And soon his eyes had drunk her beauty up,
Leaving no drop in that bewildering cup,
And still the cup was full. (Keats).
51. Let thy white shoulders silvery and bare
Shew cold through watery pinions. (Keats).
52. Voices of soft proclaim, and silver stir
Of strings in hollow shells. (Keats).
53. Hesperia—
Out of the golden remote wild west where the sea without shore is,
Full of the sunset, and sad, if at all, with the fullness of joy,
As a wind sets in with the autumn that blows from the regions of
stories,
Blows with a perfume of songs and of memories beloved from
a boy,—
Blows from the capes of the past over sea to the bays of the present,
Filled as with shadow of sound with the pulse of invisible feet,—
(Swinburne).
54. Light heard as music, music seen as light. (Swinburne).
55. There shot a golden splendour far and wide,
Spangling those million poutings of the brine
With quivering ore. (Keats).
56. And slumber in the arms of melody. (Keats).
57. And towards the loadstar of my one desire,
I fitted, like a dizzy moth, whose flight
Is as a dead leaf's in the owlet light,
When it would seek in Hesper's setting sphere
A radiant death, a fiery sepulchre,
As if it were a lamp of earthly flame. (Shelley).